CONSTRUCTION

METHODS AND EQUIPMENT

July 1952

Equipment Maintenance Directory

. W HILL PUBLICATION



AMPLIDYNE CONTROL—first applied to movable bridges by G.E.—permits raising and lowering Oakland's new Fruitvale bridge in a shorter time than by any other method. Amplidyne control responds instantly, provides faster acceleration and deceleration.



BRIDGE OPERATION is centered in operator's console. Amplidyne's closer control keeps ends of span aligned during operation, "seats" bridge accurately and smoothly.



REDUCED STRESS ON BRIDGE structure and machinery results from torque limiting, inherent in amplidyne control. Photo shows part of G-E drive equipment in east tower.

Smooth, pinpoint control speeds bridge operation

G-E amplidyne-controlled drive prevents skewing, seats span faster, protects structure from shocks

Key to precise control, faster operation, and better equipment protection of Oakland's new Fruitvale Avenue Lift Bridge is its General Electric amplidyne-controlled drive system. Working closely with Woodruff & Sampson, consulting engineers for the Corps of Engineers, Judson Pacific-Murphy Corp., general contractors, and Enterprise Electric Works, electrical contractors, G.E. has again engineered the versatile amplidyne into an outstanding movable-bridge system.

This is but one example of the help G-E engineers can provide your engineers or consultants on installed equipment for heavy construction projects. Contact your G-E Apparatus Sales Office. General Electric Company, Schenectady 5, N. Y.



WORLD'S FIRST amplidyne-controlled lift bridge pioneered by G.E.— is Stickel Memorial Bridge in New Jersey. Consulting engineers were Hardesty & Hanover.

Engineered Electrical Systems For Heavy Construction



B.F. Goodrich



Tires in use twelve months —and never off the wheel!

• B. G. Young & Sons of Johnson City, Tenn., do general road contracting throughout Tennessee, North Carolina and Virginia. The company's 20 trucks, 6 tractors and 11 other off-the-road units roll daily over roads covered with sharp, blasted rock and gravel.

Take the unit pictured above, for example. Its tires have continuously carried 16 tons of equipment plus a payload of 20 tons of rock and dirt on just such roads for over a year. Yet not one of these B. F. Goodrich Universal tires has ever been removed from its wheel!

No wonder Mr. B. G. Young, partner of this company, says, "The service we obtain from B. F. Goodrich tires with the nylon shock shield is far and beyond anything we have experienced before."

Universal tires give such superior

service even under the toughest operating conditions because the tread is made of specially-compounded, curresistant rubber. The tread wedges give positive 2-way traction. And Universal tires—like all tires of 8 or more plies in the complete B. F. Goodrich line—are built with the nylon shock shield, exclusive BFG development.

Layers of strong nylon cords, coated with rubber, lie between the tread and cord body. Under impact these cords stretch together to protect the tire body from shock. This shock shield increases tire mileage, boosts bruise resistance, means more tires can be recapped and reduces the danger of tread separation.

This is why Mr. Young adds: "We get more hours of service from BFG tires than from any other make we have ever used."—why his company uses

B. F. Goodrich tires exclusively on its off-the-road equipment.

There's a B. F. Goodrich tire to meet your off-the-road requirements. Most of these off-the-road tires are also available in all-nylon construction. See your BFG dealer—he's listed under Tires in the Yellow Pages of your telephone book—or write: The B. F. Goodrich Company, Akron, Ohio.

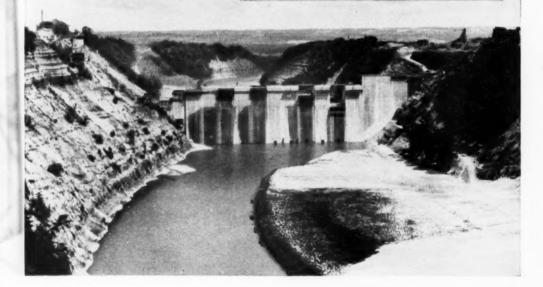


GULF PRODUCTS and **FINE SERVICE**

keep equipment rolling

on Mt. Morris Dam Project

Mt. Morris Dam Builders, Inc., consisting of 5 leading contractors, has just completed the construction of the huge Mt. Morris Dam on the Genesee River near Mt. Morris, N. Y. One of the largest in the East, the new dam will impound the run-off from a watershed of 1077 sq. mi. Major items of work and materials included 670,000 cu. yds. of earth and rock excavation, 767,000 cu. yds. of concrete, 800,000 bbls. of cement, and 1500 tons of reinforcing steel.



HE Mt. Morris Dam is a big construction project. It's the kind of job on which contractors don't take chances with their equipment. They want smooth, dependable operation and the best insurance they can buy against costly mechanical delays.

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CONSTRUCTION

Volume 34, Number 7

JULY 1952

Established 1919

Equipment Maintenance Directory

Directory of Manufacturers' Manuals: Operation Maintenance and Repair of Construction Equipment

PRODUCTIVE MAINTENANCE

Maintenance is Owner's Responsibility—quest editorial	51
Editorial: productive maintenance	67
Construction Maintenance in Pictures	83
Know Your Motor Grader Care	92
Can Construction Equipment Take It?	94
Ease of Maintenance Army Style	100
Central Shop Handles Big Rigs	105
How the Distributor Helps With Maintenance	113
Know Your Wire Rope Fittings	120
Know Your Lubricants	127
Earthmoving: Off-Highway Truck Operation and Maintenance	144
Hardsurfacing Keeps Iron Range Equipment Operating	
Know Your Oil Seal Installation	174
Job Talk 6 Know Your Costs	158
Picture of the Month 42 Contractor-Labor Relations	
Construction 'Round the World 47 Sales and Service	188
Safety is for Maintenance Too 63 Construction Equipment News	202

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July 1952

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Top tire for drive-wheel traction on graders and pans.



HARD ROCK LUG

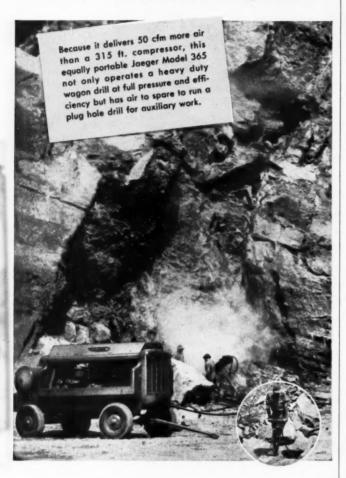
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As compact and portable as compressors of much less capacity, Jaeger Air Plus units produce, at the rock face, the air you need to operate your drills at full efficiency. Model 250 fully powers 2 heavy rock drills. Model 365 fully powers 3 heavy rock drills or one heavy wagon drill plus a plug hole drill. Model 600, introduced by Jaeger, was the first to run 2 heavy wagon drills efficiently. For increased production with low cost air power, see your Jaeger distributor or send for Catalog JC-1.

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PUMPS . MIXERS . AGGREGATE SPREADERS . CONCRETE SPREADERS, FINISHERS

* JOB TALK *

Productive Maintenance

Know Your Bearings

Anti-friction bearings cradle most of the important moving parts of construction machines—often under conditions of heavy loads and large thrusts. Their care and adjustment too frequently is neglected until there is a breakdown. A working knowledge of basic bearing care should be part of the education of every man in charge of construction equipment maintenance.

You can get plenty of information on bearing care by contacting the manufacturers of anti-friction bearings. A number of instructive manuals is listed in the Directory of Equipment Maintenance Manuals published in another section of this issue. Another way is to get the AFBDA Bearing Maintenance Reports. They are chock full of practical bearing information and can be obtained from the Anti-Friction Bearing Distributors Assn., 1900 Euclid Ave., Cleveland 15, Ohio.

Pistons Can Be Conserved

The point of greatest wear on an engine piston is around the top ring groove. If a piston is sound otherwise, machining the upper groove for a wider piston ring will give a bonus of extra life to the piston. Caterpillar Tractor Co. dealers have been salvaging diesel engine pistons in this fashion for several years. Regrooving of pistons is done either by turning on an accurate engine lathe or through the use of a handoperated precision tool known as the "Manulathe".

The tool is fast and accurate and produces a finished product equal to a latheturned job on both aluminum and cast iron insert-type pistons. Caterpillar distributors are saving operators of their engines real money by giving them fast service on the salvaging of pistons and reducing costs on replacement parts. The company recommends regrooving of top grooves for all but its newer highoutput engines. Special wide compression rings are available.

Careful Tire Storage Pays

Those big off-highway tires are expensive. A lot has been said about proper care and repair of tires in use, but proper storage of new tires or rubber on equipment in storage is equally important. Here are a few tips by the Goodyear Tire & Rubber Co.

Keep rubber away from heat; a (Continued on page 16)

9ts another NORTHWEST



When it's built for digging like this...

You can be sure of high output in any kind of digging

BUILT for the tough jobs, it handles the easy jobs more easily. Built for rock it gives greater output in softer "going"!

If you have a real Rock Shovel—a Northwest Rock Shovel, you are ready for anything your job may uncover. The Northwest Dual Independent Crowd makes handling the "big ones" easier and gives a fast, sure pass through tough shale without time-consuming, stuttering, second starts to fill the dipper. The "Feather-Touch" Clutch Control assures easier operation and smoother control without the complications of pumps, compressors, tanks, tubing or other delicate mechanism.

Uniform Pressure Swing Clutches smooth out the swing, assure greater accuracy in spotting the load and reduce upkeep and adjustment. The Cushion Clutch eliminates sbock overloads before the overload reaches the machinery, eliminating resulting strain and possible damage.

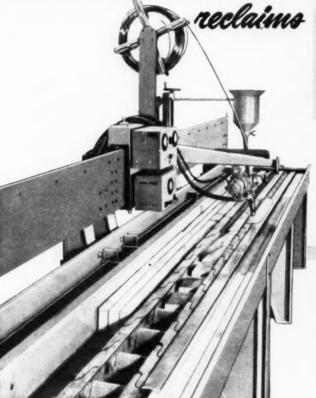
These are only the high points that make the Northwest a real Rock Shovel. You should know about Northwest Crawlers, Northwest Machinery Bases and Side Frames, Northwest Convertibility and other Northwest advantages. These features mean better output in any digging.

You can plan for a Northwest. Why not talk about placing an order? Join the Northwest Crowd!

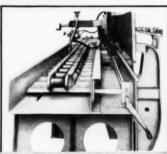
NORTHWEST ENGINEERING COMPANY 1983 Field Building, 135 South LaSalle St., Chicago 3, Illinois Successful Contractors
stay successful
with good equipment

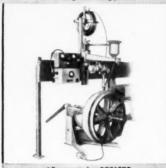
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Fast, Automatic Re-surfacing Unit



TRACK LINKS ROLLS IDLERS SHEAVES





HANDLES ALL MAKE TRACKS

Now, you can re-surface and reclaim track links, rolls, idlers, sheaves or other circular work, quickly, easily, at low cost on the BERKELEY ConSERVall. Simple and completely automatic in operation, the ConSERVall requires no skilled operator. Anyone can become expert with a few hours instruction.

Tracks can be re-surfaced and quickly returned to service at a fraction of present costs. The complete track is placed in the ConSERVall trough just as it is taken from service. Adjustments are quickly made and the re-surfacing operation begins. Weld length and space between welds are automatically controlled and indexed by cams which are quickly and easily adjusted for any type track.

The standard Model 30 ConSERVall will re-surface any

track currently in use without dis-assembly or relocation of the track during the re-surfacing operation.

Rollers, idlers, sheaves and other circular work can be re-surfaced or welded by the addition of a 5 ft. Carriage Track Extension and the BERKELEY ROTATOR. ROTATOR Spindle speeds are adjustable from 0 to 71/2 RPM. The Spindle is adjustable from the horizontal to a vertical position. A 12" vertical adjustment permits resurfacing all sizes of rolls and idlers. Cone centers assure concentric rotation of the workpiece. The ConSERVall cross slide, with its conveniently located handwheel controlled traverse, insures smooth overlap of the weld bead.

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On construction, mining and industrial work, job records prove that Euclids step up production and cut costs. Large capacity, high travel speed and day-in and day-out availability are some of the reasons why "Eucs" haul more loads per hour at less cost per load.

Ask your Euclid distributor for help in estimating earth moving costs for your next bid ... or write direct for literature and the new edition of the Euclid estimating manual.

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The Billion-dollar Giant at Savannah River

In Aiken and Barnwell Counties, South Carolina, a construction job is in progress that is not only changing the face of the earth but may well change the course of history.

By the fall of this year an estimated 45,000 construction workers will be employed on this project—the mighty Savannah River Plant being built for the U. S. Atomic Energy Commission. Its purpose is to produce the fuels required for both A-bombs and H-bombs. The prime contractor is E. I. du Pont de Nemours & Co., Inc., and a number of the country's foremost construction companies are sub-contractors.

Total cost of the plant is expected to be at least \$1,200,000,000. Twenty million cubic yards of earth will be moved, and 1,250,000 cubic yards of concrete will be poured before it is finished. The plant area covers 315 square miles of sparsely settled land. It will be linked together by 105 miles of modern roads, 60 miles of railroad grade and 85 miles of underground water pipe.

Up-to-date earthmoving methods and equipment are making rapid headway on this enormous undertaking. For example, one sub-contractor, R. B. Potashnick, of Cape Girardeau, Missouri, has moved over 800,000 yards of earth in less than three months. Accounting for a major part of his production are four "Caterpillar" DW21 Tractors with No. 21 Scrapers. These fast two-wheel rigs have been averaging 1,500 cubic yards apiece in a 9-hour day. Each unit is push-loaded by a "Caterpillar" D8 Tractor, and it carries up to 20 yards of pay load over a 2,500-foot haul.

Potashnick equipment has also completed grade for 19 miles of 4-lane highway on the project in less than 90 days. Such speed is typical of all construction work in the area.



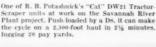
Very few people except those directly involved are allowed inside the project area. But there is one common factor throughout the immense operation. Wherever people go there are big yellow machines at work. "Caterpillar" Diesel Tractors, both wheel and track-type, "Cat" Scrapers and Wagons, Motor Graders, Engines and Electric Sets—all are contributing their dependable production capacity to the biggest and perhaps the most important job in the history of the world.



A "Cat" No. 12 Motor Grader, owned by R. B. Potashnick, levels grade for a railroad bed in the Savannah River project area.

Before water pipe is laid, a "Caterpillar" Diesel D4 Tractor with HT4 Traxcavator finishes grading the dict. Owner, U. S. Atomic Energy Commission







CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS



On complicated 3-sided cofferdam for the \$5 million East Bronx Unionport Bridge Construction.

Says John Ury, Project Manager for Contractors:

WM. M. MOORE BUILDING CORP.

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75 West 190th Street
Bronx, New York

Construction started in 1949, and skillful driving of 30 to 45 ft. Interlocking Steel Sheet Piling by these 2 contractors made this an economical, successful job. Unionport Bridge crosses Westchester Creek in East Bronx.

Rental Piling had to be driven considerably below the bed of the creek, with extra reinforcing to protect against swells.

An interesting installation of piers had to be constructed atop 35-year old existing caissons. Here was a tough water seepage problem in a complicated 3-sided cofferdam — approximately 1,000 gpm had to be pumped out of the cofferdam by two 6-inch pumps. Steel Sheet piling was needed — on time — in the exact section and lengths (30 to 45 feet). And Foster had it — just what the job required. A phoned order — a prompt delivery, a dependable quality — and a low cost, requiring no huge purchase investment on the part of the contractor, made FOSTER RENTAL PILING the 100% answer for this job.

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Please send prices, literature and name of
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Machines.

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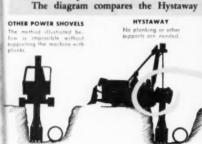
Address....

Zone_Stat

Mud and Mountains are HYSTAWAY'S Dish

Not only was mud and rough mountainous terrain a problem contended with on the pipeline job shown, but in some instances trench excavation had to be accomplished by positioning the machines at right angles to the ditch. (Straddling in the conventional manner was not possible without shoring up, which is costly and time consuming.)

The Hystaway is capable of full production digging in this position and it is the only excavator-crane designed to swing the boom from a point to the rear of the tracks. Exclusive HYSTAWAY® Design Advantages
Pay Off for Pipeline Contractors



swing design to full revolving machines.

In addition, because the Hystaway mounts on a Caterpillar Track-type Tractor it combines high production excavator-crane work, with full tractor mobility and maneuverability. This permits moves to be made at tractor speeds, through mud, over rocky, mountainous terrain; also makes it possible to get into jobs unassisted, work in places inaccessible to other excavators.

The Hystaway can be equipped to operate as a Backhoe, Shovel, Dragline, Clamshell, or Crane. Controls and other operating features are similar to standards set for half-yard excavators.

The Hystaway mounts on Caterpillar D8, D7 and D6 tractors. After initial installation, mounting can be accomplished in approximately 1 hour and demounting in 1/2 hour. Removal of the Hystaway frees tractor for normal bulldozing, other jobs.

See your Caterpillar-Hyster dealer, or write for literature.



HYSTER COMPANY

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• Ellis, Kelly & Co., Owensboro, Ky., will tell you, "We use our 100 H.P. Adams Motor Grader on all types of work—grading, ditching, banksloping, etc.—and prefer it on high-speed, heavy-duty work. Its 8 forward speeds enable us to work in the highest practical speed for the job at hand. On oil mix work the Adams is outstanding—mixing at speeds up to 8 mph. and laying as much as 8,000 feet in one day."

Here is convincing evidence that Adams Motor Graders do have the power, speed and stamina to handle all grading operations—better, faster and at lower cost. Ask your local Adams dealer for complete information on the model best suited to your needs. 4 Average-Work Speeds
for Ditching, Scarifying, Bank Work,
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Adams Motor Graders give you 2 more forward speeds than several machines of similar size—8 forward speeds instead of 6. These additional speeds give you an extra working speed and a higher "high"—up to 25 mph. This means greater selectivity of speeds on all work—an exactly right speed for handling every job at the fastest practical rate... plus 30 to 50% faster job-to-job transport.

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Make your next motor grader an



BUILDERS "LINK BRAINS TO THE HANDS" WITH NEW 2-WAY PORTABLE RADIOPHONE



CHICAGO, Ill.—(Special)—A fourteen-pound electronic wonder, the Littlefone*, is small alongside the vast mountains of steel and concrete that go into America's mighty dams, but construction engineers wouldn't part with the Littlefone for its weight in uranium.

"When you've climbed a 200foot scaffolding on a big dam just once," says a veteran chief engineer, "that's when you'd stop and search the world over for a different answer!"

The answer was the Littlefone, a new, two-way portable radio-phone that literally "links the brains to the hands" in construction jobs. Work crews even miles away can keep in constant touch with the engineering offices for split-second decisions that speed work, prevent accidents, and save time and money.

TAKE BUCKETS "OFF ICE"

On an upper Missouri River project, the Littlefone was pressed into service to smooth the flow of overhead cement "buckets"—huge buckets of dripping cement that jammed up "on ice" as the workmen say, at the pouring site. The Littlefone, from the pouring site to the filling point miles away, permitfed proper timing—

*Also available in 91/2 pound models.

and saved thousands of man hours, and tons of wasted cement.

Throughout industry, the Littlefone extends the "voice of authority" into actual field operations. It patrols huge oil tank "farms" to speed reports on fire safety... it is a partner with railroaders, miners, lumbermen, oil



Hand Carry Model

and pipeline workers — helping industry to build quicker, more economically, and with greater safety.

Write today for full specifications—find out how Hallicrafters Littlefone can save you time and money. Write Dept. L-CM.

HALLICRAFTERS, CHICAGO 24, ILL.

JOB TALK . . . Cont. from p. 6

temperature range of 40 to 60 deg F is best. Tires should not be exposed to daylight; put an opaque paint on windows or cover over around storage rooms. Keep the storage area clean, dry and clear of oil. It is particularly necessary that tires be kept dry inside. Moisture can rot out tire cords.

Air currents should be held to a minimum to keep down the supply of oxygen, which governs the rate of deterioration. If tires have to be stored outdoors, lay them flat on a foundation of wood strips and cover with a tarpaulin. Keep piles at a moderate height; high piles put too much weight on bottom casings. If tires are kept on stored equipment, block up the vehicle axles with the tires clear of the ground and release 50% of the air pressure.

Tubes require even greater care than tires. Keep them in the original packages wherever possible and in a cool, dark, draft-free storage. Used tubes should be deflated completely and folded and protected as carefully as new ones.

Cooling Systems Are Busy

At this time of year the cooling system of an engine in construction equipment must deliver full efficiency to keep the engine delivering its rated power. Minor obstructions that hinder the flow of cooling fluid or air can spell the difference between normal temperatures and overheating.

Every maintenance man is alert to the need for clean systems and the prevention of scale and internal corrosives. But it is equally important to clean radiator cores on the outside with pressure streams of water or air and to straighten bent fins, shrouds and fan blades. Fan belts that are loose or worn badly cannot turn the cooling fan at sufficient speed to carry off engine heat.

Thermostats sometimes stick, too. Engines are designed to operate within a certain temperature range. If operated at high temperatures for any length of time, high repair costs may be discovered at a later date when the engine is overhauled and the full effects of excessive operating temperatures are realized.

Check the Tracks

Allis-Chalmers points out that crawler track shoes require checking to be sure they are bolted securely. Track pins and bushings should be checked for wear. Check the track release mechanism and make necessary adjustments, and the final drive sprocket teeth should be inspected for wear.

Tracks with too much or too little slack are exposed to breakage and unnecessary wear and damage. Each (Continued on page 26) Why take battery troubles for granted?

BE SURE TO SPECIFY

Leece -

ALTERNATOR SYSTEMS

25 to 35 amperes with engine idling

• Most battery troubles result from inadequate generating systems. Conventional d. c. generators just don't produce enough current to keep up with today's load of accessories. Slow driving, short trips and long idling make it even tougher. On the other hand, overcharging, caused by poor voltage control, ruins plenty of batteries.

ALL THE CURRENT YOU NEED

You get rid of all this when you specify the Leece-Neville AC-DC Alternator System in place of the conventional d. c. generator. For one thing, you can specify the capacity you need: there are Alternator Systems rated at 60 amps. to 175 amps. for 12 volt systems.

25 TO 35 AMPS. IDLING!

Because the L-N Alternator gives you 25 to 35 amps. with the engine idling, batteries stay fully charged. They do not have their life shortened by excessive cycling. At the same time, you stop overcharging of batteries, because the accurate, rugged L-N Regulator holds voltage right on the nose.

Freedom from battery troubles is just one of many advantages you get when you specify the L-N Alternator System. For the complete story, write the Leece-Neville Co., Cleveland

14, Ohio. Automotive Electrical Equipment for over 40 years. Distributors in principal cities ... Service Stations everywhere.

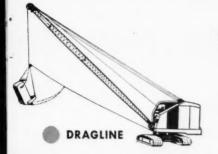




BEFORE YOU BUY...
LOOK AT A REALLY \(\(\rho_{//} \) MACHINE!

AMELICA





ERICAN





1375

F you want to be insured against obsolete design in your next crane, shovel, dragline or pull shovel...hold everything, and take a closer look at the American 375!

From top to bottom, it's tomorrow's machine. Tracks are bigger, broader, tougher. The crawler mechanism has ingenious new maintenance and safety features. Cab and controls are designed to help the operator do more work with less effort. Adjustments are simpler. In both crawler and truck mounted models, the American 375 offers speed and smoothness never before achieved.

If you want to be ready to meet and beat the toughest competition, you owe it to yourself to see the American 375 before you buy. For detailed information on any model, mail the coupon below.

Built by

American Hoist

& Derrick Company ST. PAUL 1, MINNESOTA

MAIL THIS COUPON

American Hoist & Derrick Co. St. Paul 1, Minnesota CLIPPED FROM CONSTRUCTION METHO

- Please send more information on the new American 375.
 - ☐ CRANE ☐ SHOVEL ☐ DRAGLINE ☐ PULL SHOVEL

☐ TRUCK CRANE

Name

Company

Compan

Address.

City____

Zone State

ATV ままでも大き手で、そのかないことをでいるままが開



Here's what the contractors say:

"The saving of time and elimination of guesswork by using the Texaco Simplified Lubrication Plan were important contributing factors in completing the contract on schedule. Using the proper lubricants has paid us big dividends."

> J. M. Corbett — M. J. Boyle Co. Chicago, Illinois

The job was constructing some 130,000 square yards of stone base runways, 21 and 27 inches thick, at U. S. Air Force O'Hare Field Base Extension, Park Ridge (Chicago), Illinois. Since this is a very active base, the job had to be done without disrupting normal operations. Work, therefore, had to be coordinated and peak performance maintained to assure completion within the limited time allotted.

All equipment on the job was lubricated and fueled exclusively with Texaco. The Texaco Simplified Lubrication Plan — which calls for *only six* Texaco Lubricants to handle all major lubrication — greatly speeded up the maintenance of equipment, and the high quality of Texaco Lubricants assured dependable, efficient performance.



TEXACO



AT WORK ON O'HARE FIELD: Texaco Lubricants and Fuels were used exclusively. Equipment included: 10 Le Tourneau Tournapulls, 6 Caterpillar Motor Patrols, 2 HD-20 Allis-Chalmers Tractors with Gar-Wood Bulldozers, 5 D-8 Caterpillar Tractors with 18-yd. scrapers, 2 HD-20 Caterpillars, 8 shovels with 2-yd. buckets, 8 road rollers, 4 air compressors, 2 trenchers, and 20 trucks.

LUBRICATION PLAN CONSTRUCTION...

Products Used in Texaco Simplified Lubrication Plan

- 1. Engine Lubrication: Use Texaco Ursa Oil X** for both heavy-duty gasoline and Diesel engines. Fully detergent and dispersive, it keeps engines clean, protects against wear, rust and corrosion. Reduces maintenance costs and fuel consumption.
- 2. Chossis Lubricotion: Use Texaco Marfak. It won't jar or squeeze out of bearings, gives longer lasting protection against dirt, rust, wear. More than 400 million pounds of Texaco Marfak have been sold!
- 3. Wheel Bearing Lubrication: Use Texaco Marfak Heavy Duty. It seals out dirt and moisture, seals itself in assuring longer bearing life and safer braking. No seasonal change required.
- 4. Crawler Track Lubrication: Use Texaco Track Roll

Lubricant. It gives long-lasting protection against dirt, water and wear. Reduces maintenance costs.

- 5. Air Compressor Lubrication: Use the Texaco air compressor oil recommended to exactly suit your operating conditions.
- 6. Rock Drill Lubrication: Use Texaco Rock Drill Lubricant EP. It gives superior protection against wear, prevents rust whether drills are running or idle.

Let a Texaco Lubrication Engineer show you how the Texaco Simplified Lubrication Plan can be adapted to your particular job conditions — can save you time and money on every project. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

Lubricants and Fuels



NEW ALLIS-CHALMERS HD-9, HD-15 ARE

built to GET MORE DONE



THE NEWEST, FINEST LINE ON EARTH!



40 drawbar hp 11,250 lb.



72 drawbar hp 18,800 lb.



109 drawbar hp: 27,850 lb.



Hydraulic Torque Converter Drive 175 net engine hp 41,000 lb

built to TAKE IT LONGER

Unequalled Lugability

The HD-9 and HD-15 build up greater drawbar pull faster... hold it longer than ever thought possible in gear transmission tractors.

For example, when tough going has pulled travel speed down 40 percent, these tractors will have increased their drawbar pull almost 20 percent over rated pull. They will lug down almost 45 percent from rated travel speed before drawbar pull even starts to fall off.

To take full advantage of this important GM 2-cycle diesel engine characteristic, the HD-9 and HD-15 have longer truck frames, lower idlers and sprockets. That means more track on the ground . . . better stability . . . sure-footed traction . . . unequalled *lugability*.

Extra Long Life

Here are a few of the many reasons why these newest, finest tractors are built to take it.

- All-Steel Welded Construction
 - More Power with Bigger Engines Longer Engine Life
 - More Weight, Greater Strength
 - Extra Heavy Main Frames No Extra Reinforcement Needed for Front-Mounted Equipment
 - Long-Lasting, Large Diameter Clutches
 - Double Reduction, Straddle-Mounted Final Drive Gears with Live Sprocket Shafts and Caged Bearings
 - Positive Operating Track Release Works in Oil
- All New, Specially Designed Track Assembly
- Positive-Seal Truck Wheels, Support Rollers and Idlers Mounted on Tapered Roller Bearings, 1,000-Hour Lubrication!

Your Allis-Chalmers dealer will be glad to explain all of these advantages. See him or phone him now.

DESIGNED FOR YOUR JOB . BUILT TO "TAKE IT" EASY TO OPERATE . EASY TO SERVICE

ALLIS-CHALMERS

NOW...all the HOT PATCH any type...any quantity...



PORTABLE...COMPACT...LOW COST

The Mixall is the ideal patching or maintenance mixer—a natural result of Barber-Greene's years of research and engineering experience as the leader in the bituminous paving field. It offers an exclusive combination of an efficient rotary drum aggregate dryer with a proved B-G twin shaft heated pugmill mixer, and is called the Mixall because of all the things it can do . . .

MIX ALL QUANTITIES: from a single batch up to 5 tens per hour of hot mix—or up to 10 tens per hour of

cold patch. Ample for all maintenance and small paving jobs.

MIX IN ALL LOCATIONS: towed to the job by truck leaded with aggregate . . . fed directly from truck or from stock pile or pit. Can work in a single traffic lane.

MIX IN ALL WEATHER: heated aggregate makes low atmospheric temperature mixing possible—allows quick repair to prevent major failures.

MIX ALL TYPES: of bituminous patch material including stabilized mixes—as well as Portland cement mixes of lower slump than can be produced by conventional concrete mixers.

see your B-G distributor or send for details

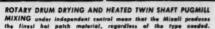
material you want ... where and when you like it

the NEED

During the war our roads took a terrific beating—while new construction and repair programs were cut to a minimum. Since the war, in the face of ever heavier traffic loads, rising costs and lack of funds continue to limit new construction and place an even greater burden on maintenance programs in city, town, county and state. Road maintenance is primarily patching—the "stitch in time" that prevents major breakups. Yet until the advent of the new Mixall, an efficient and economical means of producing all types of hot, high-quality patch material has not been available.











NO SETUP TIME REQUIRED: the Mixall deesn't have to be unhitched from the truck unless the truck is needed elsewhere. Even unskilled labor can quickly become expert at Mixall operation.

is ANSWERED

MUNICIPALITIES: the Mixall makes possible immediate attention to patching and other maintenance needs regardless of quantity of mix, type of mix or location of job. The Mixall takes mixing out of the pit and right to the job, wherever you want it.

CONTRACTORS: a virtually untopped market premises profit to those who go after it with the Mixall—driveways, sidewalks, barn fleers, railread crossings, eutdoor storage areas, service stations, parking areas, fennis courts, playgrounds, etc.

SEE IT IN OPERATION: Complete demonstration programs are being carried out by Barber-Greene Distributors who are also presenting the seund-celor movie, "Here is The Answer." Get in touch with your B-G Distributor and arrange to be present. In the meantime, fill in the coupon and send for more complete details.

A small, highly portable unit, capable of on-thespot production of even the highest types of hot mixes comparable to those produced in Barber-Greene's largest continuous hot mix plant—that is the Mixall. Its range of usefulness extends throughout the field of road maintenance into small paving and resurfacing jobs. With the Mixall, municipalities, maintenance engineers and contractors need no longer resort to inferior cold patch material or be dependent upon the type of mix currently being produced by their local central plant sources.

Barber-Greene Company Aurora, Illinois

Send me the descriptive 8-page bulletin on the Mixall.

Name	
Firm Name	
Address	
Ata-	

Another reason why BAKER is the BETTER blade



Baker Blades are designed not only for peak flexibility, but for

rigidity. With up to 12 inches of tilt available in five positions, the operator simply adjusts the frame at the trunnion brackets by shifting two pins. Also, adjustments are made on an arc movement which provide full bearing contact in all positions.

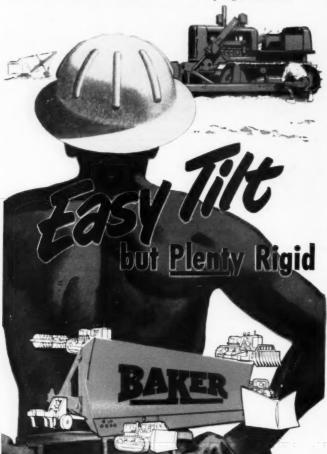
That's why owners and operators say Baker Blades will take a beating and *stay solid*—without developing "play" or shimmy.

The complete line of Baker Bulldozers, Gradebuilders and Root Rippers—all easily interchangeable, too—is manufactured exclusively for Allis-Chalmers Crawler Tractors. Three mountings are

available: enginemounted hydraulic, frame-mounted
hydraulic (the revolutionary 9-X
"No Push Beam"
'Dozer) and cablecontrolled types.

Call or write your Baker, A-C Dealer today—ask for proof why Baker is the better blade—dollarwise—for you.

THE BAKER MANUFACTURING CO. Springfield, Illinois



Baker—The most versatile line of tractor attachments

JOB TALK . . . Cont. from p. 16

manufacturer makes his own recommendation as to slack but, generally, when the track can be pried above the top roller or rollers, to get a clearance of 1½ to 2 in., it is about right. One tractor maker asks a 3-in. clearance between top roller and track on his largest model.

Ever Try Metallizing?

The oxyacetylene tanks and the electric welder are part of every contractor's bread and butter, through their versatility both as production tools and as fast fixers when a maintenance problem raises its head. There is yet another metal-applying method which can save real money and often get an operation back to work with little downtime when it is difficult to get a certain part—or when that part is costly.

It is metallizing, by spraying hot metal upon a worn part to build it up and hen machining to the proper dimensions and surface. Metallizing may not be practical where a job is way off in nowhere, but the Metallizing Engineering Co. can give you some interesting examples where big equipment has been put back into service in a hurry at relatively low cost.

Long Way Off, But . . .

This is July. The weather is hot, and construction equipment is being pushed for all it is worth to make those profits that help to carry a business over the slack season, among other things, Downtime for equipment now can be awfully expensive. And that reminds us of next winter-when work is halted in many sections. Although December and January seem a long way off, it is wise to do a little odd-moment planning to get your equipment cleaned thoroughly. overhauled and repainted next winter. One highway contractor, Denton Construction Co., Royal Oak, Mich., completely overhauls and repaints every piece of equipment during the winter months. Regular operators-who know their machines-serve as mechanic's helpers and advisers. Why not jot down a few ideas for next winter now, when they are fresh in your mind?

Get the Facts

An operator's or mechanic's technique is only as good as his information about the equipment in his charge. Maintenance information and operating instructions on the equipment on your inventory are available from the manufacturers that built those machines. Equipment makers go to great expense to supply the right information to anyone needing it. All you have to do is ask for it. See the special Directory Section beginning on page 67.



TRU-LAY Preformed WIRE ROPE

• For each use there is one best wire rope...one that will stand repeated loading, abrasion, crushing, or continuous bending, and be the best rope to buy.

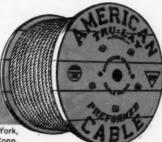
To achieve this, there is a TRU-LAY <u>Preformed Wire Rope made in a special construction</u> for your equipment. This construction has the exactly right combination of strength, bending life, and resistance to wear and crushing that you need.

The one best wire rope... TRU-LAY <u>Preformed</u>... will last you longer and cost less to use. Specify and get TRU-LAY <u>Preformed</u> improved plow steel—the rope identified by the <u>Green Strand</u>.



AMERICAN CABLE DIVISION AMERICAN CHAIN & CABLE

Wilkes-Barre, Pa., Chicago, Denver, Houston, Los Angeles, New York, Odessa, Tex., Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.



NEW! light, compact, D-C field

ENGINE-DRIVEN

WELDER

with A-C power take-off



TIELD MAINTENANCE



FARM AUXILIARY POWER



PIPELINE CONSTRUCTION

A UNIT WITH MANY APPLICATIONS!

The new Westinghouse Engine-Driven Welder was developed for construction and field-maintenance operations. It provides 200 amperes of d-c current for welding. It also provides 3,000-watt, 110-volt, a-c current for stand-by power. By simply plugging into convenient receptacles on the a-c power panel, the operator may obtain power for drills, grinders, pumps, lights and other electrical equipment.

The standard unit is skid mounted for truck transport or may be mounted on a high-speed, pneumatic-tired trailer. Ready for field service, the unit weighs only 1,150 pounds and measures 39½" high by 62%" long in the stationary model.

The standard model has hand-crank start. Battery start is also available.

A large toolbox for storing cables, helmets, electrodes, tools and other accessories is also included if desired.

FOR MORE INFORMATION

Write to the Westinghouse Electric Corporation, Welding Division, Buffalo, New York, or contact your nearest Westinghouse representative.

J-21611

welder PLUS stand-by power!



1 CONVENIENT A-C

3 kw stand-by power can be obtained without using a bulky, auxiliary rotating machine. The operator simply plugs into one of the convenient 110-volt, a-c receptacles. This stand-by power is extremely beneficial when ordinary sources of power are not available.

2 IMPROVED GENERATOR

Closely coupled to the driving engine, this new improved generator makes it easier to strike and maintain a steady welding arc. No exciter is required. Welding current ranges from 40 amperes at 20-load volts to 250 amperes at 40-load volts.

3 EFFICIENT, RELIABLE ENGINE

The new welder is equipped with a performance-proved, 4-cylinder, liquid cooled, Ford industrial engine. It is rated 30 maximum and 25 continuous horsepower at 1,800 rpm. The engine is equipped with oil filter and oilbath air cleaner.



For the War Against Wear in the Fight for Economy

MSCO

Manganese and Hardfacing Rods

AMSCOATING

THE RIGHT WAY TO SAY HARDFACING

Delivery

For prompt delivery of these welding products, contact your AMSCO distributor.



mpact and abrasion are always at work but their effects can be postponed through the use of AMSCO Welding Products, Reclamation and rebuilding of worn or damaged equipment parts by Amscoating means dollar-saving, long-lasting protection. The AMSCO Hardfacing System successfully fights wear caused by impact, abrasion, heat or corrosion. It assures longer equipment life and fewer repairs.

AMSCO AW-79 will meet every requirement for better control of wear where obrasion and impact are important factors—plus all the advantages of automatic welding. Especially suitable for rebuilding and hardacing tractor rollers, steel wheels, sheeting rolls, dredge pins as well as dozens of other applications. %° and %° in 22½° ID.

1b. com.
SCO No. 459 for severe abrasion, mild impact. Has ellent abrasion resistance. All diameters, bare and

area.

MSCO No. 217 for abrasive service up to 1100° F.

e deposit retains hardness at high temperatures. All
ameters, bare and coated.

MSCO No. 6 for combination of corrosion or abrasion,
for 1000° service and above. Used as focings for tool
id die applications. No. 1 has greater abrasion resist-

AMERICAN

Brake Shoe

COMPANY

Other Plants New Castle, Del., Denver, Oakland, Cal., Las Angeles, St. Lavis.



WELDING PRODUCTS

Manganese Steel Bars and Shapes

CONTROLS IMPACT and ABRASION

Through many years' experience in the production and application of manganese steel.—"the toughest steel known"—AMSCO has developed welding products designed solely to conserve and protect parts exposed to impact and wear. American Brake Shoe Company's scientists and engineers are working continuously to build better defences against wear in machines and equipment.

AMSCO Welding Rods are known for their excellent service in many applications—from rock crushers to materials handling pumps . . . in forging, rolling, stamping, and cutting . . for years, sprocket wheels and clutch cams . . . in grinding, mixing, and chipping operations . . . Whatever your problem of wear, there's a "proved-in-service" AMSCO Hardfacing Froduct that can solve it.

ance; No. 6 is the tougher, and can be mechined. All

AMSCO No. 1 for combination of corresion or stression, or for 1000° service and above. Used as facings for their and die applications. No. 1 has greater abrasion resistance; No. 6 is the tougher, and can be machined. All diameters, bare and coated.

AMSCO MARMACE or AMSCO CHRONEFACE for industrial and farm use. Deposit has excellent resistance to low stress sliding abrasion. All dismesters, bare and severe impact. Deposit can be forged to a sharp edge without losing hardness. All diameters, bare and gested.

AMSCO HF-40 for severe abrasion and moderate im-

ct. Deposits of HF-40 are hard and abrasian resistant. diameters, coated only. ANSCO HT-50 for moderate impact and severe about on. This rod is particularly suitable for application in both flat and vertical positions. All diameters, coated only.

AMSCO CO-MANS for build-up on monganess stee costings exposed to severe impact. Deposit has excellent impact resistance. All diameters, costed only.

AMSCO TOOLFACE for mobal to motal wear up to 1000° F. Toolface deposits have excellent abrasion resistance. All diameters, here and coated.

AMSCO DIEWELD for tools and dies. Deposit may be softened for machining and rehardened, Retains a been curling edge.

AMSCO V-MANG for build-up on manganese castings autocood to impact.

TUNGETEN CARBIDE.

A complete line of manganese steel dipper tooth repointer bars and other chapes are available.

AMERICAN MANGANESE STEEL DIVISION

385 EAST 14th STREET . CHICAGO HEIGHTS, ILL.

In Canada: Jaliette Steel Division, Jaliette, Que. Annes Walding Products distributed in Canada by Canadian Liquid Air Cs., Ud.

CHAINS and PROCKETS

General purpose Chains for use on high-production units in the Industrial and Construction fields . . . shovels, rollers, conveyors, bucket elevators, drilling rigs, and for drives.

Jeffrey Chains and sprockets will keep your equipment operating at its best. They have a long and consistent record for lowering material handling costs . . . have quite a reputation for thrifty performance and enduring reliability.

Demand high-quality Chains and Sprockets . . . the kind that Jeffrey builds.







FOR A ROCK BUSTING SHOVEL



... IN THE LORAIN 820

HERE'S WHY! Rock busting takes guts in a shovel. It takes plenty of power—plus a design that can stand up against battering-shattering impacts. That's why you need—and should demand—these two, outstanding, important Lorain-820 features.

The finger-tip control of Lorain "Air-Assist" on crowd, retract and travel clutches makes it easy on the operator—yet retains the full "feel" of the machine so necessary for fast production in rock. Full air control of tread lock, steering, crowd brake, and jaw clutches lessen operator fatigue, increase yardage. And the final touch—a typically Lorain design bonus—is that all air controls are equipped for mechanical or manual auxiliary operation.

There's immediate take-over-no lost time.

Handle Rock?—why a Lorain 820 is just made for it. Air does the work—and the Lorain Hydraulic (fluid drive) Coupling takes the "shock out of rock" to give the smoothest operation —without operator fatigue—with less strain on the machine. Digging shocks and impacts "melt away"—just can't be transferred into the mechanism and cables. The engine "neversays-die" . . . it hangs on until the most unyielding rock is in the dipper.

There are many more 820 features that make it worth your while to investigate this leader of the 2-yard shovel class. To be sure of a "rock buster" (not a shovel buster), get the Lorain-820 story from your Thew-Lorain Distributor—real soon!

FREE BOOKLET ...

If your work calls for a big rubber tire crane, get your copy of the new booklet picturing mighty 45-ton Lorain Moto-Cranes, modd MC-824, in action. It's a picture book of the world's largest crane on rubber... on big jobs across the country. Be sure to get a copy of this unusual job booklet.



THE THEW SHOVEL CO., LORAIN, OHIO

LORAIN (BE)

Introducing a great

for medium dumps, concrete mixers and other heavy-duty service

Now GMC brings you another sensational advance—a new low-cost six-wheeler chassis that's unequalled in horsepower in its entire field.

This new GMC W450-30 will haul

its rated pay load faster, with less gearshifting, than anything in its capacity class!

It is powered by GMC's new valvein-head "302" engine with the highest power for its weight in trucking —



Page 34 - CONSTRUCTION Methods and Equipment - July 1952

new 6-wheeler chassis

the highest compression gasoline truck engine built today. And it uses regular fuel!

It's the newest star in GMC's great 1952 line-up that's making hauling history. Why not stop by your nearest GMC dealer's and check its price for the best surprise of all?



These facts speak for themselves!

Model .													W450	-30
Capacity											26	١,	000 G	VW
Compres	si	01	3										.7.2	to 1
Net Hor	84	p	OV	ve	r	0	9		.1	3	0 6	1	3200	rpm

GASOLINE & DIESEL TRUCKS

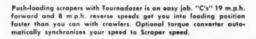
GMC Truck & Coach Division of General Motors



What operators like about









Tournadozer operator sits ahead of engine, on big, foam-rubber cushioned seat ... can see where he's going, what he's doing on both dirtmoving and snowplowing jobs. No stretching, no twisting. Blade, steering, shifting controls are operated by convenient fingertip controls.

Plus Safety



Fingertip electric controls

Simple electric dashboard switches control steer
and blade. With no balky controls to fight, operator maneuvers faster . . . can concentrate on
load at all times . . . is less tired at end of shift.

DOZING on RUBBER





"Easiest machine I've ever operated," says Operator J. E. Chandly, Hattiesburg, Miss. of this Tournadozer. "Compared to a crawler, it's like driving a new car alongside an old truck." Note excellent condition of tires after 3½ years, 6000 hours of work. Tracks would have required constant greasing plus 5 or 6 overhauls during same period.

Building a stock tank near Mart, Texas, for Cantractor J. R. Manning, Operator Dave Blanchard reports this Tournadezer "did twice as much work as a crawler in wet clay. Tournadezer gets around fast to our scattered johs, too," says Blanchard. No planking is needed . . . rubber-lired rig drives over pavement, curbs, tracks without damage.

OUR men who take a daily beating on the seat of a crawler-dozer will really appreciate the smooth, easy ride of the rubber-tired "C" Tournadozer. When operators ride on big, low-pressure tires they don't get the constant jarring you've come to accept as a necessary evil in dozing. At the end of the shift they'll step off Tournadozer feeling less tired than they ever did after 8 hours on a crawler.

You doze faster . . . travel anywhere

Air-foam rubber seat plus shock-absorbing tires take the jar out of the toughest going . . . let unit doze safely at fast speeds . . . back up for next pass at 8 m.p.h. Tournadozer is fast on-the-job and job-to-job. You can run this versatile rig cross-country or over any road surface at 19 m.p.h. speeds . . . cross rails, curbing without planks. You steer, shift, and doze by means of fingertip controls.

All the push and pull you need

A 186 h.p. Diesel driving all four wheels gives you plenty of power for clearing, leveling or any dozing operation. You're also going to like Tournadozer for scraper loading. As a prime mover Tournadozer hauls a loaded scraper to the fill and returns to the cut at speeds up to 19 m.p.h...

for push-loading it gets into position fast . . . loads fast . . . gets back quickly for next unit

Maintenance is simple

There are no steel parts to grind and wear in abrasive materials when you doze on rubber... no track rollers to lubricate. It is impossible to grind or strip gears, as frequently happens when shifting gears on a crawler. Ask your LeTourneau Distributor for more facts on this easy-to-operate, easy-to-maintain rubber-tired dozer.

TOURNATRACTOR rubber-tired pusher \$19,000

Fast, powerful 186 h.p. pusher does a bang-up job of push-loading scrapers . . . is equally adaptable for towing. Forward speeds to 19 m.p.h., reverse to 8 m.p.h. Massive billet, sturdy pusher plate. Easily converted to Tournadozer at any time with addition of A-frame, blade. PCU, lights, cab, etc. also available.

*With pusher plate, F.O.B. Longview, Tex.



Instant braking power

Powerful multi-disc air brakes on all 4 wheels (2822 sq. in. braking surface) let operator stop on a dime . . . give him perfect confidence for faster dazing over banks. R. G. LeTOURNEAU, INC.

Peoria, Illinois

Keeping a road-razor honed...



Up to six times longer with Airco Hardfacing Alloys

Grading, the final touch to highway construction . . . or the end of the back-fill on any construction job . . . poses tough problems for 'stayon-the-job' equipment.

Rocks and low-grade fill lie ready to chew the finest scraper blades...unless they are pre-protected with one of the many Airco Hardfacing Alloys available for extending the "sharpedge" life of your equipment as much as six times longer than ordinary scraper blades.

But no matter what *your* wear problem, it will pay you to look into the more than twenty Airco Hardfacing Alloys for your tools and parts. Any Airco representative will be glad to give you complete information. Write or call your local Airco Office today.

AT THE FRONTIERS OF PROGRESS YOU'LL FIND





AND OFFICES IN

AIR REDUCTION

AIR REDUCTION SALES COMPANY - AIR REDUCTION MAGNOLIA COMPANY - AIR REDUCTION PACIFIC COMPANY
REPRESENTED INTERNATIONALLY BY AIRCO COMPANY INTERNATIONAL

DIVISIONS OF AIR REDUCTION COMPANY, INCORPORATED

AT LAST ...

Adnun Liquid Level: Vertical reading glasses can be set for absolute level or plus or minus. Being mounted on the Cutter Bar Supports and connected by tubing, liquid is directly affected by slope of Cutter Bar.



Positive Leveling Control for Black Top Paving!

- Level up old road perfectly and positively
- Correct accurately for any slope at any station
- Holds level grade without modifying desired crown
- Blend new level shoulder into old crown

NOW, for the first time in the history of black top paving, it is possible to lay a level surface over old road and bold it level accurately and positively. The new Adnun Liquid Level combined with the direct lift feature of the Adnun Cutter Bar Screed has made this a certainty. The Adnun Liquid Level permits following fluctuations in grade, visually. Mechanical adjustment on the direct lift Cutter Bar Screed permits instantaneous or gradual corrections to hold the bubble in the level at the desired setting for an absolutely level surface.

You can bring wavy old roads with reverse slopes to "level". You can build dipping shoulders up to level and blend them into old crown. You can correct, accurately, for any slope at any station.

Only a Black Top Paver with a screed having a straight lift can do this. Adnuns make new roads out of old. They do things other pavers won't do. Remember, the important result is a good road. Ask for details.

THE FOOTE COMPANY, INC.

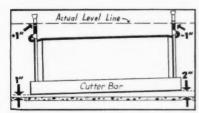
Subsidiary of Blaw-Knox Co.
910 State Street • Nunda, New York





Above: Roads of this type are becoming an increasing problem to Highway Departments. They can be leveled with Adnuns.

Below: Diagram of Liquid Level set to lay course 1" at shoulder and 2" at crown. This could be reversed to build up undulating or broken down shoulder.



CAPT. EASY Says:

CUT HOSE REPLACEMENT COSTS
WITH ON-THE-SPOT REPAIRS
USING WEATHERHEAD HEAVY DUTY
HOSE AND REUSABLE HOSE ENDS



With Weatherhead Heavy-Duty Hose and Reusable Hose Ends, you can make onthe-spot repairs on all off-the-road equipment, if you carry bulk lengths of these sizes of Weatherhead H-25 Heavy-Duty Hose—and the Reusable Couplings.

SYNTHETIC FRICTION LAYER

WIRE BRAID

SYNTHETIC TUBE

MAXIMUM PROOF MINIMUM MINIMUM WORKING TEST I. D. PRESSURE PRESSURE PRESSURE INS. P.S.I. P. S.I. P. S. L. 5000 12400 16500 35% 3/8 4000 9750 13000 41/2 1/2 3500 9000 12000 53/16 3/4 9000 2750 6750 63/4 2250

You can service all heavy-duty equipment, yet keep your replacement stock to a minimum, the EASY Weatherhead way!

to assemble...

Any hose assembly you'd ever want for off-theroad equipment replacements can be made up as needed, using ordinary hand tools.

TASV to stock ...

No need to carry a big inventory of made-up hose-and-fitting assemblies. Keep hose in bulk, cut to proper length and assemble with hose ends as needed.

on your costs...

You save time by eliminating delays to locate, order and deliver special assemblies. You save through smaller, simplified inventories (just hose and needed hose ends are all you have to stock). And you save because Weatherhead hose ends are REUSABLE.

Be sure to ask your automotive jobber for Weatherhead Synthetic-Covered H-25 High Pressure Hose and REUSABLE Hose Ends. THE WEATHERHEAD COMPANY, Dept. T-5, 300 East 131st Street, Cleveland 8, Ohio. In Canada: THE WEATHERHEAD COMPANY OF CANADA, LTD., St. Thomas. Ontario.

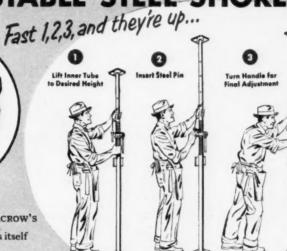


Standard 6" x 6" Boom Type 14" x 4", and J Head-14" x 4" available

ADJUSTABLE STEEL SHORES



The flexibility of ACROW'S flat-type head lends itself to any size stringerno redesigning of formwork necessary to fit shore heads, as is required with head types of limited adaptability.



- . One Man Does the Work of 2
- · Micro-fine, Positive Adjustment Working Ranges From 3'4"-15'
- Safe Working Load Fully Established and
- No Extra Attachments Required for Operation -**Self Contained Unit**
- Practically Indestructible—All Steel

ACROW-The World's Largest Selling Shore-Over 1.000.000 Now in Use

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Houston, Underwood 8514 Dallas, Riverside 6051 Birmingham, 7-5151

Los Angeles, Lomita 2889

San Francisco, ATwater 2-1442

ACROW, INC., Dept. CM-7 510 North Dearborn Street, Chicago 10, III. Gentlemen: Please send me the following Bulletins (Please Check)

Acraw Shores Column Clumps
Trench Jucks

ASSOCIATE COMPANIES

Acrow Uraguay S.A., Montevideo Acrow Argentina S.A., Buenas Aires Acrow Peru S. A. (Ingenieros), Lima

Acrow (lingrs.) Ltd., London Acrow Engrs. (Pty.) Ltd., Johannesburg Acrow Engrs. (Pty.) Ltd., Sydney

Acrow (Canada) Ltd., Montreal Acrow Venezuela S. A., Caracas Acrow Brazil S. A., Rio de Janeiro



Maintenance Supports Construction

WELDERS TURN momentarily from production welding on a construction job to on-the-spot repair of their crane boom. Near Buffalo, the New York State Thruway is carried across main-line railroad tracks on reinforced concrete columns. Steel reinforcing cages for the columns are fabricated on the site by the subcontractor, Cehler's Welding and Radiator Repair Co., using a Westinghouse EW-20 200-amp engine-driven welder. Oehler tows to the job this versatile unit, powered by a 4-cylinder Ford industrial engine, and is able to use it alternately as a welder or for standby electric power — getting up to 3 kw of 110-v ac for power tools or emergency uses.



DURAPLASTIC* scores another touchdown in Texas stadium

THE REFEREE is W. F. Swigert of Swigert Construction Company, Waco, Texas, contractor for Baylor University's huge new stadium. His verdict: "We are well pleased with the performance of Duraplastic in any type of construction."

Mr. Swigert says his firm has used Atlas Duraplastic airentraining portland cement for years because "Duraplasticmade concrete is more workable, and there is less segregation of aggregates."

Important points! Duraplastic also minimizes water-gain, generally improves surface appearance, fortifies the finished concrete against the effects of freezing-thawing weather . . . and in paving, resists the scaling action of de-icing salts.

YET DURAPLASTIC COSTS NO MORE

It sells at the same price as regular cement and requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklet, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Ave., New York 17, N.Y.



NOTE UNIFORM SURFACE appearance of concrete in close-up of this stadium job. With Duraplastic, less mixing water is needed for a given slump. The mix is more plastic and more uniform; aids proper placement.

Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis,

*"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company

Makes Better Concrete at No Extra Cost

"THE THEATRE GUILD ON THE AIR"-Sponsored by U. S. Steel Subsidiaries - Sunday Evenings - September to June

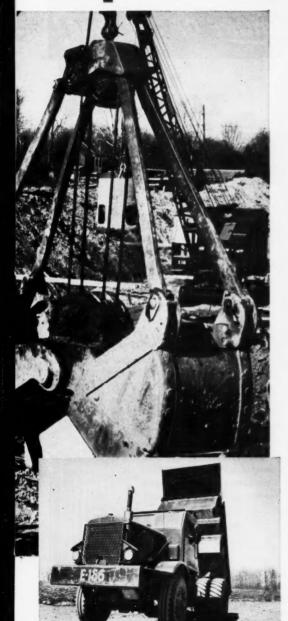
"Motors Cleaner and



Clam shell excavators lubricated exclusively by Sinclain

Owner of I84 Trucks and 230 Pieces of Equipment Uses Only Sinclair Lubricants

Repair Costs Down"



Sinclair lubricants keep this dump truck on the job

says JAMES D. MORRISSEY, Inc., of Philadelphia

James D. Morrissey, Inc. is one of the largest diversified operators in Pennsylvania.

Besides its construction interests, this company owns and operates a large asphalt plant and the Eureka Quarries, where total capacity reaches 4,000 tons daily.

Mr Morrissey, who picks Sinclair Heavy Duty Lubricants for *exclusive* use in his 184 trucks and 230 pieces of equipment, says:

"Sinclair Heavy Duty Lubricants have proved themselves in two important ways. First, we've saved time and money by being able to standardize our lubricants. Second, we've reduced repair costs due to cleaner motors and lack of sludge accumulation, a problem in some types of our work."

Why don't you learn more about these outstanding heavyduty lubricants? It will cost you nothing. Contact your nearest Sinclair Representative or write Sinclair Refining Company, 600 Fifth Avenue, New York 20, N. Y.

SINCLAIR HEAVY DUTY LUBRICANTS



CONSTRUCTION 'ROUND THE WORLD . . .



ITALY REBUILDS WITH OUR AID — Bombedout living quarters and former slums are being replaced gradually in Italy with the help of Marshall Plan funds and technical assistance. This area in Naples was cleaned up and is getting sunny apartments to help replace some 7,000,000 rooms destroyed during the war. Reconstruction is a cooperative undertaking of ECA, the Italian

Government, Workers' Housing Fund and private contractors. Modern municipal planning has been brought into play to forestall haphazard developments, and the energy of the Italian construction industry is such that approximately one-half of the houses totally destroyed by war have been replaced. Early estimates set a time limit of 9 to 12 yr for total replacement.

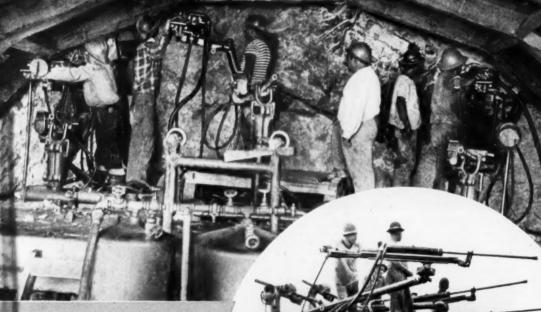


INSIDE TURN — A LaTourneau E16 Tournarocker executes a 90-deg turn inside a water-power development tunnel in Sweden as another is loaded by a Northwest shovel. Tunnel is 36 ft wide, 40 ft high and will be 2.9 mi long. Construction involves the excavation and disposal of 785,000 cu yd of tough, heavy gneiss-type rock. Six Tournarockers employed average 18-ton loads.

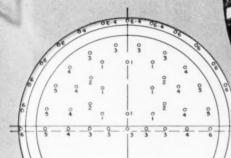


NEW FOR BRITAIN — This house, on the edge of Wiltshire Downs, is built around four timber frames which form the front and back of the structure. The frames are filled in with wood-wool slabs and plastered over; light-gage wire strengthens the wood-wool. Three brick walls—one at each end and one in the middle—take the structural loads.—Eastern Publishers photo

Tunneling



Right: Six-drill jumbo with Le Roi-CLEVELAND power feed drifters and airmeter booms on a 1½-ten truck. 1½" round-lug steel and 2" carbide bits. Air supply — two 500 cfm compressors.



Left: Standard drill pattern for 50-hole round. Typical of the top-heading and bench method used by Constructiones Hidraulicas, S.A. in driving three 27'-bore circular tunnels in Obregon, Sonora, Mexico.

costs reduced!

with Le Roi-CLEVELAND Drifters and Jumbo Booms

You spot your holes easier — get less overbreak!

You get higher drilling speeds, for faster cycles!

Better fragmentation! More footage per shift! That's the pay-off, when you use Le Roi-CLEVE-LAND Jumbo Booms and power-feed Drifters in your rock headings. The pay-off that means lower costs on any rock-drilling or tunneling job.

● Le Roi-CLEVELAND Jumbos are versatile. Air-motor powered booms let you spot and space your holes quickly and easily for the most efficient fragmentation. Their greater flexibility lets you keep the tunnel bore close to pay line — with little overbreak or underbreak.

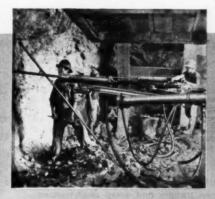
- Rigid, non-slip set-up feature of Le Roi-CLEVELAND Jumbo Booms keeps drifters in line, prevents steel binding, saves wear and tear on chucks.
- ◆Strong rotation of Le Roi-CLEVELAND Drifters plus snappy, powerful force of blow give you unexcelled drilling speed. Graduated feed throttle lets you adjust pressure to get maximum footage in any type of rock formation. Fast feed travel makes steel-changing quick and easy.

Get more drilling done every shift. Save the money overbreak steals from you. Put the versatility of Le Roi-CLEVELAND Jumbo Booms and the dependable drilling speed of Le Roi-CLEVELAND Drifters to work for you. Write today for complete information.



LE ROI COMPANY

CLEVELAND ROCK DRILL DIVISION
12500 Berea Road, Cleveland 11, Ohio
Plants: Milwaukee. Cleveland and Greenwich. Ohio



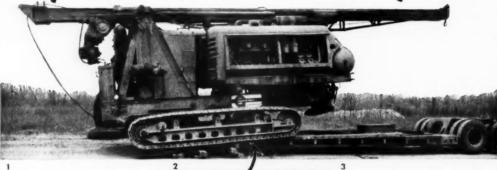
The seamy rock in one tunnel at Obregon required 9 sections of timber every 3'. To save time on timbering, the contractors used the Le Roi-CLEVELAND air-motor powered jumbo booms to raise the sections of timber from the top deck of the jumbo to the roof.



Tunnel No. 1 at Obregon is 2411' long; tunnel No. 2, 1378'; tunnel No. 3, 1850'. Tunnel bores were so regular one observer said they must have been cut with a knife.

THE MAN SAID

"Show me an <u>easy</u> way to load a concrete paver"



Removing the gooseneck

easy front-end loading with a TALBERT

removable aposeneck* trailer



Attaching the gooseneck



Ready to engage gooseneck and fifth wheel



Removing blocks



Loaded and ready to roll



Wherever highways are built, buildings con-

structed, excavations made . . . wherever ... you'll find a need for a Talbert Removremovable gooseneck permits easy front-

end loading, as shown. The elimination of long boards and complicated blocking provides safe "one-man operation."

Large "production-priced" tires and there is heavy equipment to be transported spring tandem suspension provide worthwhile operational savings. The Talbert way able Gooseneck Trailer. The lightweight is not only the easy way-it is also the economical way!



THE TALBERT CONSTRUCTION EQUIPMENT CO., of Lyons, Illinois manufactures a complete line of low-bed trailers and dump semi-trailers

TALBERT-WAY IS THE EASY WAY

The Maestro Speaks



• Proudly we present this article from the pen of Ed Galvin, veteran construction equipment manufacturer who knows whereof he speaks. For lo these long years we personally have known Ed and respected and admired him for his ability and wisdom. We knew him at Caterpillar, at Le Tourneau, at LaPlant-Choate, and Tyson Bearing and now keep close to him at Buda. Few men in the equipment industry can match his long experience in setting up and working with distributors on all the problems of sales, service and maintenance. Therefore, when Ed Galvin advises the equipment owner to take the major responsibility in maintenance of his machines, that owner had better listen for his own good.

Maintenance Is Owner's Responsibility

...Says Veteran Manufacturer

By E. R. GALVIN, Assistant to the President, The Buda Company

THE EQUIPMENT OWNER must assume more responsibility than ever before for service and maintenance of construction machinery if he is to obtain high production and maximum efficiency from now on. When the equipment industry was in its infancy a quarter of a century ago, relatively few machines were in use and production was low compared with that of today. Then, and for some time following, it was physically possible for distributors and manufacturers branches to provide com-

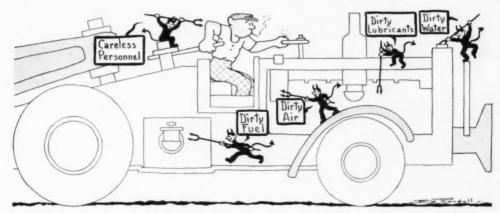
plete service for units working in their areas. Those were the horseand-buggy days of service.

But today the service responsibility has assumed such vast proportions that the burden must be shared by more people now and in the future. With the present magnitude of the equipment industry, and the anticipated expansion, high production standards can be achieved only through greater owner interest and participation in all phases of machinery service and maintenance. The in-

creasing mechanization of construction necessitates a re-appraisal of service responsibility to hold the line on costs.

And the machine owner is the logical person to carry a bigger share of the load. It is to his own best interest to do so. Surely, this current high-tax, low-profit era should stimulate higher owner maintenance standards and increased efficiency of construction operations.

As owner and heavy investor in construction equipment, the con-



"FIVE MAJOR ENEMIES of construction equipment are: Inferior and dirty fuel; inferior and dirty lubricants; dirty air through lack of

attention to air cleaners; water that clogs the cooling system; and careless personnel permitting dirt to get into working parts."

Here's how to make money...



Page 52 - CONSTRUCTION Methods and Equipment - July 1952

and lowering maintenance

with U·S·S High Strength Steels

Earth-moving equipment makes money only when it's on the job. Breakdowns not only involve big repair bills, but cause you to lose profits by lowering output and increasing your job time.

With U'S'S High Strength Steels breakdowns can be greatly reduced . . . equipment can be built to stand up, day after day, under the hardest kind of service, regardless of weather or ground conditions. That means repair and maintenance bills are cut to a minimum, work stoppages are fewer and the output of your equipment is substantially increased.

With U-S-S Cor-Ten, U-S-S Tri-Ten and U-S-S Man-Ten steels you can provide maximum strength and toughness in parts ordinarily prone to fail. These steels afford high resistance to wear, fatigue, abrasion and impact. And if your equipment must operate in sub-zero temperatures, or under unusually corrosive conditions, high resistance to these destructive forces can readily be secured by using these steels.

These famous "steels that do more" have a yield point 50% higher than ordinary structural steel. And that means another big advantage. It means that you can materially increase the strength of parts without increasing their weight. Or you can use lighter sections and reduce weight while retaining the same strength factors as you had before. In the latter case, substantial savings in steel will result.

For 16 years, our engineers have cooperated with manufacturers in applying U·S·S High Strength Steels to construction equipment famous for its reliability, long life and low maintenance cost. They will be glad to show you how these tougher, stronger, more durable steels can be applied to . . .

Give your equipment the stamina to stay on the job!

U-S-S TRI-TEN STEEL

This manganese-nickel-copper steel has a yield point of 50,000 pai min. and a tensile strength of 70,000 pai min. in thicknesses ½ and under, with moderately lower values as thickness increases to a maximum of 4". It has superior toughness and ability to withstand shock at sub-zero temperatures. It has greater resistance to abrasion than structural carbon steel (ASTM A7) and tis fatigue resistance is 50% higher. U.S-S Tai-Tan steel's resistance to atmospheric corrosion is slightly superior to that of cooper steel.

superior to that of copper steel.

Because U.S.S TRI-Thin steel has very good welding properties in intermediate and heavier thicknesses, this grade of U.S.S High Strength Steel is highly recommended for application in heavy-duly equipment where maximum ruggedness and strength with minimum weight are prime requisites. Produced in plates, structural shapes, har and bar shapes.

U-S-S MAN-TEN STEEL

U.S.S Man-Ten is a grade of manganese-copper steel that, at relatively low cost, provides toughness, workability and weldability in a higher degree than obtainable in carbon steel of the same strength level. Its atmospheric corrosion resistance is slightly higher than that of connect steel.

copper steel.
U.S.S MAN-TEN steel, in thicknesses up to \(\frac{\psi_0}{2} \) inclusive, has a yield point of 50,000 psi min. and tensile strength of 75,000 psi min. Its abrasion resistance is greater than that of structural earbon steel (ASTM A7); its fatigue strength is approximately 40% higher, insuring greater ability to withstand vibration and reversal of stresses.

U.S.S Man-TEN steel is produced in plates, shapes, bars, sheets, strip, special cold-formed sections and other forms. It is particularly recommended for use in light and intermediate thicknesses.

2-1419

UNITED STATES STEEL COMPANY, PITTSBURGH - AMERICAN STEEL & WIRE DIVISION, CLEVELAND - COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO

NATIONAL TUBE DIVISION, PITTSBURGH - TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. - UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS

UNITED STATES STEEL CAPORT COMPANY, NEW YORK

U-S-S HIGH STRENGTH STEEL



UNITED STATES STEEL



IF YOU'RE THE OWNER of an earthmoving spread like this, you had better assume the responsibility for maintenance and service, advises Ed Galvin.

constant availability and productive efficiency. Here's why:

Most every job he gets is the result of low bidding in the face of stiff competition. This precludes the possibility of abnormal profits and places a premium on production. He is probably working against a completion date, subject to severe penalties for delay. He performance. works against increasingly rigid inspection calling for higher and

gambles on the weather, and must be prepared for the unexpected and unusual. Labor is another gamble as to supply, wages and attitude. Materials, likewise, are a gamble as to cost, quality and availability. And, of course, he must assume his cost estimates are sound-but they are based on certain equipment

In the face of all these contingencies, it is easy to appreciate

tractor has a large stake in its higher construction standards. He the importance of high machine availability. Dependable equipment availability can be attained only by making provision for an adequate service and maintenance program. And such a program, after all, is primarily the responsibility of the owner.

> The objectives of sound owner service-maintenance program for his own best interests and to further the nation's security effort include:





THERE'S A LOT OF MONEY tied up in this equipment. It will pay the owner to see that the machines are properly maintained and serviced for maximum availability.

1. Conservation of machines made of critical materials, which are costly to replace and on which deliveries are uncertain because of emergency requirements. (The steel strike didn't help the equipment supply situation, either.)

2. Keeping production high through improved operating and maintenance controls, and by adequate inventories of frequently required replacement parts.

3. Enabling manufacturers to plan more effective use of production facilities through reduction of emergency repair part orders.

These objectives can be attained by:

- 1. More attention to selection, training and supervision of machine operating personnel.
- 2. Employment and supervision of skilled mechanics.
- 3. Use of fuel and lubricants sold by leading suppliers, or equal.
- 4. Clean, dust free areas where engines and other precision machines can be serviced and overhauled.
- 5. Substantial inventory of frequently used genuine factory repair parts sufficient for four to six months anticipated needs.
- **6.** Religious observance of manufacturers, maintenance and lubrication recommendations.
- 7. Relentless battle against the five major enemies of machinery and machine production:
 - a. Inferior and dirty fuel.
 - b. Inferior and dirty lubricants.c. Dirty air—lack of attention to air cleaners.
 - d. Dirty water—or water which clogs up the engine cooling system

- e. Careless personnel, permitting dirt to get into the working parts of machines.
- 8. Buying the best, buying the genuine. The use of cheap, inferior fuels, lubricants and parts can be most costly—destructive alike to production and profit. Careless sloppy maintenance and neglect are equally injurious.

America depends upon construction to uphold its economy, and to progress at all times—in peace, mobilization and war. In its highly mechanized state construction depends upon machinery, equipment and tools to meet the country's demands and needs swiftly and efficiently.

Because of its versatility and dependability, construction machinery is finding wide application in other industries, such as logging, mining, petroleum, agriculture and heavy manufactuuring. In each of these fields, too, the maintenance and servicing of the equipment is the prime responsibility of the owner. The same conditions apply as are found in construction.

The United States has long been the leading producer and user of construction machinery. No other country approaches us in turning out machinery for construction in such wide variety and in such tremendous volume. And there seems to be every indication that both the variety and the quantity produced will continue to grow indefinitely—a tribute to the progressiveness, inventive genius and effective versatility of our people.

Each year hundreds of millions of dollars worth of construction machinery, comprising thousands of units, are produced and shipped to projects of all sizes and degrees of importance. No project is too small and none too large not to be mechanized in greater or lesser

Here's LOW COST SCREENING and WASHING



IT'S COMPACT IT'S PROFITABLE IT'S RELIANCE

Clean Sand and Gravel need not cut your job-profits! Get them at LOWEST COST and get them CLEAN with Reliance Units—strong, simple, rugged, greatly improved for today's faster operation. With Reliance Units you can build exactly the right plant to meet your requirements, and it can be easily moved anywhere. Let us tell you more about Reliance Advantages—write for Catalog 48.

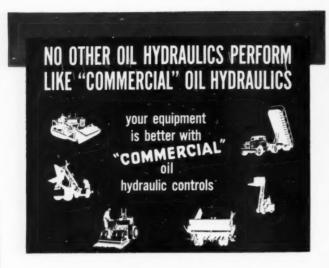
RELIANCE PRODUCTS

still available at moderate cost

Rock Crushers, Bucket Elevators, Revolving Screens, Storage Bins, Pulverizers, Chip Spreaders, Heating Kettles, Bin Gates, Feeders, Belt Conveyors, Grizzlies, Air Separators, Sand & Gravel Spreaders, Wash Boxes.

UNIVERSAL ROAD MACHINERY CO. KINGSTON, N. Y., U. S. A. Distributors in

All Principal Cities of U.S.A



Manufacturers of heavy mobile equipment rely on "Commercial" controls to operate the pay mechanisms of their products because "down-time" must be minimum. "Commercial" Oil Hydraulics give long-lived, efficient fluid power on the job and help make satisfied customers. Over a five year period, one original equipment manufacturer found less than 4% of these controls required servicing and over half of these had performed beyond their normal life expectancy.



PLACE YOUR CONFIDENCE IN "COMMERCIAL" DIL HYDRAULICS-THEY ARE MORE IN DEMAND THAN EVER BEFORE



degree. Vital indeed has been the impact of construction machinery in gearing our national economy to the ever higher levels essential to the maintenance of our living standards, providing for our rapidly increasing population and in fulfilling our foreign obligations and commitments.

Progressively, over the years a wide variety of construction machinery has been placed on the market. In the American way of encouraging free enterprise and individual initiative, the door to improvement and to the introduction of new machines and methods has always been open. Just so long as this spirit prevails, the construction industry will climb steadily to greater heights. Just as today's users freely enjoy the fruits of the efforts of the pioneers of the industry and of the men of vision who preceded them, so must they in meeting the challenge of today's conditions adopt new service maintenance standards, which in turn will lead to greater production efficiency. This will be done. Of that there is no doubt for that is inherently the spirit of the in-

Tire Care Is Profit

SO MUCH construction equipment rolls on rubber tires that improper use and care of those big off-highway tires can cost a contractor real money. Inflation pressures, for instance, have been worked out by specialists for each machine and for its type of service. To have tires inflated either above or below the limits specified is a type of expensive carelessness that should not be tolerated by equipment supervisors.

Driving habits of operators should be watched, too. Many major breaks and cuts in big tires can be eliminated by avoiding obstructions, sharp materials and pot holes in haul areas whenever possible. Remember too that these are special-purpose tires. As an example, road grader tires have to supply all the cushioning.

A little extra time spent during a tire change to remove all water and dirt—and to get casings, tubes and flaps installed properly—pays handsome dividends. Systematic tire care helps keep equipment producing, and lengthens machine life. ON THE CONSTRUCTION SCENE



READY TO CUT YOUR COSTS ALL OVER THE MAP

Here's the light-footed, heavy-handed, all-round performance that means less time and lower costs on 101 different jobs — near and far! It's the MITI-MITE — sensational new machine for truck service — it brings you 100% automotive design — and an amazing new idea in power application.

Choose your own make of truck of suitable capacity—new, used, or rebuilt. MITI-MITE gives you the extra stability that means greater work capacity.

Talk about maintenance! You never had it so easy! All gears fully encased, running in oil; antifriction bearings on all shafts and drums virtually lubricated for life.

FULLY CONVERTIBLE—for service as shovel, crane, dragline, trench hoe, clamshell or magnet crane with large machine-type attachments. See your P&H dealer for full information.

Write today for Bulletin TX-127

TRUCK CRANE DIVISION

HARNISCHFEGER

CORPORATION

Milwaukee 46, Wisconsin

See your PsH Dealer!



Here is the finest spraying mechanism available anywhere!



No relief valves...Positive Pressure Circulating System!

Delivers material to road uniformly. Handles heavy material with ease as it is hot from end to end.

Material is of uniform temperature full length of bar.

No air remains in bar after material is circulated. Starts and stops on sharp line—no "slobbering" on crosswalks, intersections.

"Shut-off-at-Nozzle"—individual valves at each pair of nozzles. You can spray through any two nozzles, or series of nozzles anywhere along entire length of spray bar.

Like pressure water faucets, nozzles start spraying the instant lever is thrown—no skips, no streaks.

When lever is reversed, spraying stops immediately—no drips, no leaks.

Shifts laterally, adjustable height, folds, raises and locks for traveling.

Get complete data and prices today!

E. D. ETNYRE & CO., Oregon, Ill.

SEE YOUR ETNYRE DEALER

ETNYRE

"Black-Topper"

BITUMINOUS DISTRIBUTORS





Marion 10-ud. Rock Body, equipped with twin telescopic, double-acting hoist, for off-the-road operation.

Marion offers a new approach to your haulage problems... an experienced approach that is coupled with engineering and manufacturing ability to design and produce whatever body and hoist equipment is needed for your particular operation.

Marion produces many standard models, too—we feel they are the finest on the market.

But if your transporation needs call for something a little different, or even radically different,

Marion can design and build it for you . . .

quickly and economically.

To those who want experienced, imaginative assistance in the review of their haulage procedures, Marion offers a service which is unmatched in the industry today.

Your inquiries are welcome.





METAL PRODUCTS CO. Marion, Ohio, U. S. A.

Manufacturing a complete line of standard and special hydraulic hoists and dump bodies.

Sure...
I got
the Contract...

TRUCK MIXERS

STEEL CURB AND GUTTER FORMS

STEEL PAVING FORMS

PRECISION

I can bid lower with my Blaw-Knox "COMPLETE PACKAGE" advantages!

paving equipment contained in one "Complete Package" I get the assembly line and the complete Package. FASTER PRODUCTION-With every piece of concrete I get the assembly-line production that accurately batches aggregate and cement, prepares the subgrade, spreads and finishes the concrete between the forms at a schedule-trimming clip. The entire project-from handling materials to the finished slab-flows smoothly and swiftly because each unit of the "package" is matched to the others for high output and efficiency.

LOWER OPERATING COSTS-The 100% mechanizaequipment lets me place more feet per day. The big capacity and economical operation of every unit mean lower costs

LOWER MAINTENANCE-There's a bare minimum of maintenance headaches. One Blaw-Knox Service Engineer takes care of everything. Each unit is designed by construction-experienced engineers to assure top performance for years of hard usage.

ALL THESE "ONE-SOURCE" ADVANTAGES-Everything that's needed for concrete construction . . . from clamshell bucket to batcher, from forms to finisher . . . on one order, in one shipment, with only one financial arrangetion possible with a "Complete Package" of integrated ment, and backed by one responsible manufacturer. One dependable distributor source for parts and service for all the equipment. With all these "Complete Package" advantages, I can bid lower, yet make more profit, on every job.



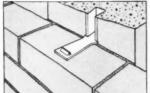
UNIVERSAL Products

"TOPS" in CONCRETE FORMING

ANCHORING DEVICES for Brick, Stone, Tile, Block

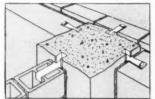
Universal Anchor Slot... wide flanges for extra strength in section ... no distortion... easy Anchor insertion... with or without filler... provides the best and most accurate means of anchoring to concrete.



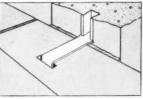


Anchoring Brick to Concrete

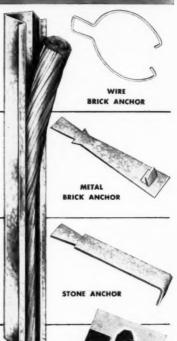




Anchoring to column with brick facing and tile partition, showing versatility of Dovetail Anchor Slot and Anchors.



Anchoring Stone to Concrete





Write for the Universal Catalog — it describes and illustrates the complete line of Universal products for concrete construction.

Also . . . SPECIAL ANCHORS MADE TO YOUR SPECIFICATIONS

UNIVERSAL FORM CLAMP CO.

Concrete Form Specialists Since 1912

Copyright 1952 by Universal Form Clamp Co., Chicago 51, Ill.

GENERAL OFFICES AND FACTORY

1238 N. KOSTNER . CHICAGO 51, ILLINOIS

OFFICES AND WAREHOUSE

 SAN LEANDRO, CALIF.
 2051-9 Williams St.

 HOUSTON, TEXAS
 2314 Preston Ave.

 CLEYELAND, OHIO
 24901 Lokeland Bird.

 BALTIMORE, MD.
 661 S. Monroe St.

 SWAMPSCOTT, MASS.
 51 Barratoble St.

Service Wherever You Build . . . Coast-to-Coast

Safety is for Maintenance, Too

EMPHASIS on good safety practices usually is placed upon the operations of production personnel. But it is equally important not to neglect equipment maintenance men. Their work never is run-of-the-mill, and hazards of all types may surround them. Their training may have to be special, but it dare not be neglected. And when injuries do occur, here are a few do's and don'ts prepared by the National Safety Council:

- 1. Report every injury for firstaid care, no matter how trivial it may seem.
- 2. Don't let your friends treat your injuries. They can do more harm than the injury itself.
- 3. Avoid putting an old rag or dirty handkerchief on a cut.
- 4. Do not touch an open cut or sore. When you do, you add more germs to those already working on the injury.
- 5. Do not pull clothing away from a burn. If necessary, cut it away.
- 6. When you get foreign matter into your eye, don't rub it. Try to hold the eye as still as possible and get to first aid at once.

Since maintenance men are called upon to perform many varied tasks, it is good practice to put warning signs, placards and decals around operations having a constant factor of hazard. Even though the characteristics of many common articles are well-known. it still is good practice to employ caution signs. Some examples: "Caution, shut off engine before refueling" on vehicles; "Wear goggles while operating this machine" on grinders; "Danger, flammable. Keep flames and heat away" around fuels and solvents.

Mechanics get into situations where some heavy lifting has to be done. Since such work is more or less occasional, they may not have the best mechanical lifting means and will tackle the job the hard way. Manhandling heavy objects is an art, and the supervisor should instruct all maintenance men particularly on proper methods and positions for lifting and moving heavy loads.

Hydraulically operated loaders, shovels, crane attachments and the like are increasingly popular. In spite of many similar accidents across the country, construction men still are being trapped painfully by hydraulic equipment dropping on them when system pressure is slacked off.

Before working on such equipment, lower the tool to the ground, let it rest on blocks or secure it with a sturdy overhead sling. Entirely too many men are being caught between vehicle frames and their hydraulically operated attachments when a raised shovel or blade drops suddenly, due to an unforeseen loss of system pressure. And, in spite of years of use around the world, raised dump bodies of haul units still drop upon experienced mechanics and operators due to carelessness.



QUAKER Production-eered HOSE



QUAKER STEAM HOSE

ORDINARY HOSE BURSTS IN 3 DAYS . . . QUAKER STILL GOOD AFTER 3 YEARS

High steady production—driving up to 80 steel piles a day. "Blow outs" eliminated . . . hundreds of manhours saved. Piling up this impressive production record proved easy—once QUAKER "production-eered" Super Ebonite Steam Hose was put to work on this brawny Texas pile driver.

Softened by lubricating oil and 120 lb. pressure, ordinary steam hose burst about every 3 days—blowing into the hammer...clogging it up. On duty well over 3 years, the QUAKER "production-eered" hose still shows no signs of softening. Still no "blow-outs" ..., no costly shutdown for repairs.

Just one more example of QUAKER "Productioneering" at work. Let an experienced QUAKER "Production-eer" help you boost production, cut costs with QUAKER "production-eered" hose, belting, packing, and molded rubber products.

*Production-eering—Every Quaker Industrial Rubber Product is "production-eered"—engineered to provide maximum life, efficiency and production on each type of installation. Quaker "Production-eers" are ready to recommend the right rubber product for the job. For timely production tips, get the new free booklet on "Production-eering for Industry." Write today.



Get This Book



QUAKER RUBBER CORPORATION

DIVISION OF H. K. PORTER COMPANY, INC.

PHILADELPHIA 24, PA. . BRANCHES IN PRINCIPAL CITIES



THIS IS THE DIESEL

for any job from 32 H.P. up

Once Diesel power was only for big jobs, but now—with the General Motors Diesel—you can have the efficiency and economy of Diesel power on any job from 32 horsepower up.

For GM Diesel's 2-cycle design (power at every piston downstroke) means more power from a smaller engine—smoother, quicker-acting, high-compression power that gets more work done faster—and uses fewer gallons of lower-cost fuel.

Clean, simple design makes maintenance easy and less expensive. Also, most moving parts are the same for all GM Series 71 engines—2 to 24 cylinders—resulting in lower parts inventory and greater parts availability.

Write us for the list of 150 manufacturers who now offer GM Diesel power in more than 750 models of equipment. Ask your nearest GM Diesel distributor to show you the savings this versatile Diesel can make on your job.

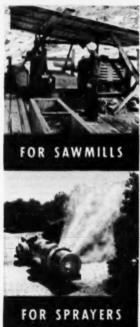
DETROIT DIESEL

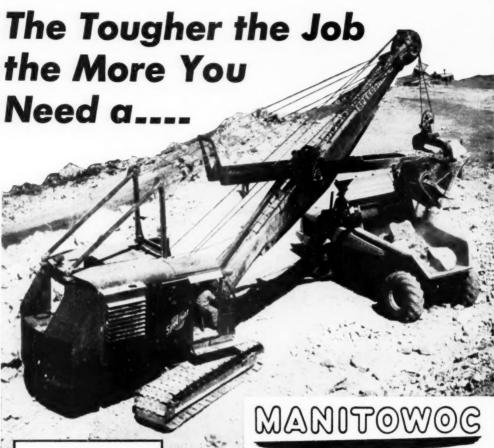
ENGINE DIVISION

GENERAL MOTORS . DETROIT 28, MICHIGAN

Single Engines , . . 82 to 275 H.P. Multiple Units , . . Up to 800 H.P.







TORQUE CONVERTER
makes the difference

. FASTER CYCLES

Highest speed ratio for the load, automatically selected. Speeds increased as much as 25% with complete safety for machine and operator.

FULL ENGINE POWER

Engine never lugged down below full speed load — Converter boosts torque, increases bail pull, without pulling down engine speed.

ABSORBS SHOCK

Oil cushion absorbs shock loads... reduces machine breakage, assures longer parts life and less down time for maintenance. Contractors throughout the nation are turning tough, low bid jobs into profit when a Manitowoc digs in.

Manitowocs give you every advantage — their rugged strength means continuous operation, with less "down time"; their fast operating cycles mean maximum output; their simplicity of design means lower original cost and lower operating cost — all factors which combine to produce more yardage, in rock or earth, at the lowest net cost per yard.

Before you bid your next job, before you invest in another shovel, crane or dragline, check Manitowoc. You'll be interested to learn why many of the largest contractors are switching to Manitowoc. Manitowoc Engineering Works, Manitowoc, Wisconsin.

MANITOWOG

CRANES 18-100 TON

1952

Harold W. Richardson, Editor

Productive Maintenance

OUR FRIENDS at General Electric Co. have coined a most expressive term-Productive Maintenancethat wraps up the whole equipment service deal in one short phrase. For, after all, the sole purpose of maintenance is to keep the machine in production,

and producing for profit, at that.

Surprisingly enough, there are all too many contractors and other equipment owners who ignore that simple, basic fact. How else do you account for the miserable makeshift shops and repair facilities, and the beat-up poor-producing machinery we find on so many jobs? Maintenance ignorance and neglect is costing the equipment owner plenty of money, too, in lost production and in efficient performance.

But even the maintenance-minded owner must assume more responsibility for his equipment service program than he has in the past. As Ed Galvin points out elsewhere in this issue, the manufacturer branches and distributors can no longer properly take care of every piece of equipment in their areas, for the growing number of units in use makes this a physical

impossibility.

Bidding competition is getting keener, machinery prices are constantly rising, many units are hard to get, and parts are still scarce. It all adds up to financial trouble for the contractor who shows no interest in a sound, practical equipment maintenance program. All too many contractors cheat themselves in believing actual production loss and repairs are the only costs involved when a particular machine is down. They forget that one unit out of line probably disrupts the planned smooth-working construction

procedure as a whole. They forget that all the overhead, other expenses and operating costs of all the smaller and accessory machinery items keep rolling right along.

Therefore, productive maintenance is absolutely essential to successful and profitable contracting today. Planning maintenance for production is just as essential as planning equipment application for production. Take a tip from Ben Williams, project manager for PK-MK at Garrison Dam. He has moved 30 million vards with one outfit, and is now rolling on another contract up there for 24 million vards more—all with a limited amount of equipment replacement. He is productive-maintenance minded, he gives his maintenance organization full responsibility for keeping the machinery in top running condition, and they alone determine when and how a unit is to be serviced, not the job supervisors.

To help you and your equipment superintendents, mechanics and operators to do this important job of productive maintenance better, we are publishing as an extra section of this special maintenance issue a directory of service and operating manuals available from the leading equipment manufacturers. There you will find a list of valuable information that will aid you in keeping your machine rolling for produc-

tive, profitable operations.

This directory will be an annual feature of Con-STRUCTION METHODS AND EQUIPMENT. Take advantage of it for your own good. But above all, don't forget Productive Maintenance.

A DIRECTORY OF MANUFACTURERS' MANUALS

On the Operation, Maintenance and Repair of Construction Equipment Pages 67-89

Manuals on Accessories and Related Services.....

You Can Get These MAINTENANCE MANUALS

All You Have to Do Is Ask for Them

HAVE YOU MR. CONTRACTOR, Mr. Operator or Mr. Mechanic, ever been stumped on the right way to operate, maintain or repair an earthmoving rig, a paver, a compressor or a small power tool?

Of course you have. And the situation became mightly aggravating when the maintenance manual and repair and parts books could not be found.

The manufacturer of construction machinery builds long service life into his product, but he knows that long life depends upon proper use and maintenance by the owner. To that end he spends a lot of money publishing information to help the customer get the greatest profit from his new property.

But these manuals manage to get lost, a used machine is traded off, and eventually some operator is on his own. He begins to run into trouble with equipment and gets less work done. The owner's profit shrinks, and he has trouble meeting schedules. The manufacturer is damned for machine failure which is not of his making.

Here is how to get the manuals you need: Copy on a sheet of paper the information found on the name plate on your machine. From the accompanying list, get correct name and address of manufacturer. Write to him, giving name, model and serial number of that particular machine.

The serial number is the most important item of information required. Through it, the manufacturer can determine quickly the exact maintenance, repair and operations manuals you require—together with information on modifications and improvements that may have been made on the model since it was built.

He will not send you any manuals unless you furnish serial numbers. This protects you against using wrong information and it guarantees to the maker that yours is a legitimate request for information. These books cost money. Some of the manuals for large equipment cost as much as \$4 and \$5 each. But even these will be sent free of charge in most cases—if the operator gives his machine serial number and the contractor's name. Fair enough, isn't it?

It's a good idea, too, to keep in touch with your local distributor. Some manufacturers prefer distributors to fill all requests for service literature, but it is almost impossible for a distributor to keep a full and up-to-date supply of manuals and parts lists. This is true particularly where one company makes machines and tools in a great variety of models and types. For information on equipment that has been in use for some years, the manufacturer is your best bet.

How to Get Operating, Maintenance, Repair and Parts Manuals

- 1. Copy on paper the information found on machine name plate.
- 2. Find name and address of manufacturer in listing in this section.
- 3. Send maker the name and model of machine, plus other information found on the name plate. Include make of engine.
- 4. Include **serial number** in all correspondence.
- 5. Where machine and its engine each have a plate, include the information from each one.
- Write on any kind of stationery, but be sure to present all information plainly. Include your name and address—and the manufacturer will appreciate it if you name the contractor-owner.
- 7. Keep in touch with your local distributor.

Maintenance Information Available

A

Acker Drill Company, Inc.

721 W Lackawanna Ave., Scranton 3, Pa. (See advertisement, page 231)

Diamond Drills: Mechanical and Hydraulic Feed Type Bulletins 30 and 33

Shot Core Drills: Bulletin 19

Shot Core Drilling Methods and Procedures: Bulletin S-12

Soil Sampling and Faundation Test Boring Equipment and Tools: Bulletins 25 and 26

Diamond and Shot Core Drilling Supplies and Accessories: Bulletin 20

Parts and Instruction Manuals for all Acker Drills. Request by Model Number: TS, TH, KR or LD

J. D. Adams Manufacturing Co.

217 S. Belmont Ave., Indianapolis 6, Ind. (See advertisement, page 15)

Motor Graders: Model Nos. 610, 550, 512, 414, and 312

Pull-Type Graders: Model Nos. 125, 124, 105, 104 and 84

Travel.oaders

Operator's manuals and repair parts lists available on all of the above, as well as all non-current equipment.

Alemite Division (Stewart-Warner Corp.) 1826 Diversey Parkway, Chicago 14, Ill. (See advertisement, page 197)

INSTRUCTION BOOKS AND PARTS LISTS

On all Alemite portable service stations, lubrication pumps, hose reels, control valves and hose assemblies, powerguns, hand-operated bucket pumps and hand guns, grease fittings.

Allis-Chalmers Manufacturing Co.

General Machinery Div., Milwaukee 1, Wis. (See advertisement, pages 22, 23)

Centrifugal Pumps: Instructions and parts lists

Texrope Drives, Speed-Changers and Variable Speed Drives: Instructions and parts lists

American Conveyor Company

1115 W. Adams St., Chicago 7, Ill.

Manuals on operation, adjustment and maintenance and parts lists for Con-vay-it, Concrete Special, Flight-Veyor, Coal-Veyor.

American Hoist & Derrick Company

St. Paul 1, Minn.

(See advertisements, pages 18, 19, 116)

Parts Catalogs and Instruction Books (A nominal charge may be made, depending upon circumstances)

American	Model	375	BC	Crawle	r Cr	ane
American	Model	375	BT	Truck	Crai	ne
American	Diesel	Elec	tric	Locome	otive	Crane

American Diesel Locomotive Crane American General Purpose Hoist

American Revolver American Steel Derricks

American Steel Erectors Hoist

The following will be sent free on request: Genuine Crosby Clip Application Wall Chart; Genuine Crosby Clip Application

American Paulin System

Pocket Card.

1524 S. Flower St., Los Angeles 15, Calif.
OPERATION AND MAINTENANCE MANUALS

Surveying Altimetry Manual: Covers operation and various uses of surveying altimeters.

Surveying Micro Barograph: Covers operation and various uses of surveying Micro barograph.

American Tractor Corporation

Churubusco (Fort Wayne), Ind.

TERRATRAC crawler tractors, bulldozer or backfill, blade back hoe attachment, straight or angle blades, and various other mounted and earthmoving equipment: Instructions and parts lists for all models, both gasoline and diesel.

TERRA-LIFT crawler fork-lifts for material handling with various additional loader attachments: Instructions and parts lists for all models, both gasoline and diesel.

A. C. Anderson, Inc.

401 W. Rio Grande Ave., Wildwood, N. J.

OPERATOR'S INSTRUCTION MANUALS

Imp Dozers-Model HG, OC-3 and A Oliver

Hydraulic Drawbars

Fire Line Plows
Hydraulic Power Packs for Oliver HG and
OC-3

Aqua Survey & Instrument Co.

2518 Leslie Ave., Norwood, Cincinnati 12, Ohio

Use and care of Aqua valve box locator: Refer to Bulletin 2518

Athey Products Corporation

5631 W. 65th St., Chicago 38, Ill.

Equipment	Instruction Book	Parts Catalog
Model L Force-Feed Loader	S-15	C-15, C-15SA
Model 3 Force-Feed Loader	S-21	C-21A, C-21-SA
Model 125 Force-Feed Hiloader	S-26	C-26

Equipment	Instruction	Parts
	Book	Catalog
Models 4 and 4W	No. 2	No. 2
MobiLoaders		
Models 4 and W4	No. 3	No. 3
MobiLoaders		
Models 4-1 and W4-1	No. 1	
MobiLoaders ser, No.		
101 to 301		
Model W4-1 MobiLoad-	5-1196	12-1196
er ser Nos. 301 and up		
Model 8 MobiLoader	No. 8	No. 8
up to 8-166		
Model 8 MobiLoader	No. 8	No. 8 with
8-166 to 8-186		prints
Model 8 MobiLoader	No. 8	No. 8 with
8-186 and up		prints
Model ML4 MobiLoader	SC-200	SC-200
Model PD-10 Trailer		
Serial Nos. 101 to 146		
Serial Nos. 147 to		101-146
400 incl.		S-17
Serial Nos. 401 & up	S-17	C-22
Models PD-10Q and		
PD-10GP Trailers	SC-30	SC-30
Model PD-20 Side-Dump		

Model PC-10 Pneumatic-Mounted Cane Trailer SC-27 SC-27 Model PL-10 Pneumatic-Mounted Logging Trailer SC-28 SC-28 Model DC-31, EC-31 & FC-31 Side - Dump SC-28 SC-28

5-32

C-24

Trailer

Quarry Trailers

C-32

C-24

C-101

C-100 C-100

 Model DB-32 2-Way
 Dump Trailer
 No. 1
 DB-32

 Model EB-32 2-Way
 Dump Trailer
 No. 1
 EB-32

 Model FB-32 2-Way
 Tailer
 No. 1
 EB-32

Dump Trailer No. 1 SC-23
Model E-35 and E-35B
2-Way Dump Trailer
Log, Oil Field and Com-

bination Trailers — CT-286, CT-289, DT-286, DT-289, ET-1018, ET-1003, CT 424, DT-424, ET-1024 C-101

Stake Platform Wagons and Trailers — CT-1053, DT-1053, ET-1075, ET-1076, CT-1053-1, DT-1053-1,

ET-1075-1, ET-1076-1 Models PC-7, PC-76, PC-7A, PC-76A, P-12610C Hydraulic Pump Units (for

Pump Units (for
Forged - Trak and
Rubber-Tired Trailers) SC-29 SC-29

- Send Serial Number -

Maintenance Information Available

Athey		Continued

Eaupment	Instruction	n Parts
	Book	Catalog
Model A Two-Ton		
Wheels	Model A	Model A
Model 14 Three-Ton		
Wheels	Model 14	Model 14
Model 7B Athey Forged-		
Trak Wheels, 6-Ton	7B	7B
Model 7C Athey Forged-		
Trak Wheels, 10-ton	7C	7C
Model 7D Athey Forged-		
Trak Wheels, 15-Ton	7D	7D
Model 7E Athey Forged-		
Trak Wheels, 20-Ton	7E	7E
Model 7F Athey Forged-		
Trak Wheels, 30-Ton		
Model 7DLS Athey	7F	7 F
Forged-Trak Wheels,		
Levee Special	7DLS	7DLS
Model 7D6 Athey Log-		
ging Arch Wheels	7116	71)6
Model 7D7 Athes Log-		
ging Arch Wheels	7D7	7D7
Model 8D8 Athey Log-		
ging Arch Wheels	SDS	SDS
Model 70L Athey Log-		
ging Arch Wheels	701.	70L
Care and Repair Tips		
Athey Forged-Trak		
Wheels	S-1	
Instructions for Rebuild-		
ing Athey Forged-		
Trak Tracks	8-2	
Field and Shop Repair		
of Athey Forged-Trak		
Wheels	S-3	
Instructions for Service		
ing Worn Gear As-		
semblies Used on		

Austin-Western Company

Athey MobiLoaders

(Subsidiary of Baldwin-Lima-Hamilton Corp.) 601 Farnsworth Ave., Aurora, Ill. (See advertisement, page 173)

Instruction Books Machine	Instruction Book
55 Power Grader	466
88-H Power Grader	431
99-DS Power Grader	458-18
99-M Power Grader	463-X
99-H and Master Power	
Grader	471-B
40 Sweeper	636-B
1/2-Yd Badger Shovel	521-A
Autocrat Roller (10-12 Ton	526
Cadet Roller (6-8 Ton)	516-A
Tandem Roller (5-8 Ton.	
8-101/2 Ton)	510-A
*Books also contain lubrica	ition charts

B

The Baker Manufacturing Co.

Springfield, Ill.

(See advertisement, page 26)

Operating and Maintenance Manual covering all Baker Hydraulic Bulldozers and Gradebuilders, Form No. 1048

Operating, Maintenance and Field Installation Manual Form No. 1049: Covers Baker Power Control Unit and the Cable-Mounted Bulldozers and Gradebuilders.

C. L. Ballard

(formerly The Prehy Co., Inc.) 420 Lexington Ave., New York 17, N. Y.

Operating and maintenance literature and

Operating and maintenance literature and repair manuals and parts lists on Prehy Concrete Gun and Prehy Grouter, Type S.

Barber Asphalt Company (See Posey Iron Works)

Barber-Greene Company

Aurora, Ill.

(See advertisements, pages 24, 25, 130)

Operation, Service, and Parts Manuals - available at \$1.00 each:

PM-44C Parts Manual for 44C Ditcher

OSM-44C Operation Manual for 44C Ditcher

SPM-82A Service and Parts Manual for

PM-358 Parts Manual for 358 Car Unloader

OSM-358 ... Operation Manual for 358

Car Unloader

PM-363 ... Parts Manual for 363 Con-

veyor
PM-374 Parts Manual for 374 Con-

veyor
PM-543-544 ... Parts Manual for 543-544
Loader

OSM-543-544 . Operation Manual for 543-544 Loader

PM-705A Parts Manual for 705A Runabout Ditcher

OSM-705A ... Operation Manual for 705A Runabout Ditcher PM-804 Parts Manual for 804 Mixall

OSM-804 ... Operation Manual for 804 Mixall Plant

PM-811A ... Parts Manual for 811A Feeder

SPM-813 ... Service and Parts Manual for 813 Feeder PM-835 ... Parts Manual for 835 Dryer

PM-837 Parts Manual for 837 Dryer
PM-839 Parts Manual for 839 Dryer

OSM-839	. Operation	n Manual	for	83
	Dryer			

PM-840 Parts Manual for 840 Mixer OSM-840 Operation Manual for 840 Mixer

PM-845 ... Parts Manual for 845 Mixer PM-848 ... Parts Manual for 848 Mixer OSM-848 ... Operation Manual for 848

Mixer
PM-857 Parts Manual for 857 Dust
Collector

PM-865 Parts Manual for 865 Grad-

PM-866 Parts Manual for 866 Gradation Unit

PM-879A Parts Manual for 879A Finisher

OSM-879A Operation Manual for 879A
Finisher
SPM-880 Service and Parts Manual

for 880 Hot Elevator
PM-881, Parts Manual for 881 Cold

Redi-Fab Parts Manual for Redi-Fab Conveyor

Barber-Greene Bitminous Construction Handbook — \$2.00

Barco Manufacturing Co.

1801-1815 Winnemac Ave., Chicago 40, Ill.

OPERATION AND MAINTENANCE INSTRUCTIONS 612A: Barco Portable Gasoline Hammer 621: Barco Rammer BR-605: Barco Pegson Rammer Model BR-5

Barnes Manufacturing Co.

Mansfield, Ohio

Operation and maintenance manuals and parts catalogs:

Model No.	Name	Size	Form No.
4M	Flash	1½ in.	76-947
7M	Streak	2	77B
10M	Whiz	2	78
15M	Lightning	3	79
20M	Ace	3	112-1146
30M	Sensation	4	80
40 M	Marvel	4	81-1149
90M	Master	6	82

Baughman Manufacturing Co., Inc. Shipman Rd., Jerseyville, Ill.

INSTRUCTION MANUALS AVAILABLE

Machine Instruction Book

Model ASK Lime and
Fertilizer Bodies A-196
Salt Miser A-346
MD-1 Tailgate Spreader A-347
Model Q-51 A-356
Parts lists available on: Model Q, Model 155,
Model 175 & 210, Model M, Model 164, Kole
King, Model ASR, Model SF-5. Give model
numbers.

- Send Model Number -

Bay City Shovels, Inc.

Bay City, Mich.

(See advertisement, page 182)

Power Shovels, Cranes and Deaglines: A combined parts book including operating, adjustment, and lubricating instructions on all models of crawler machines, CraneMobiles and CraneWagons. Give model and serial numbers as manual is "tailored" to individual machine specifications.

Beaver Pipe Tools, Inc.

Warren, Ohio

(See advertisement, page 226)

OPERATING INSTRUCTIONS CARDS

Beaver Model A pipe machine; Beaver Model B pipe and bolt machine; Beaver Model C power unit; Beaver Model E pipe and bolt machine. Operating guide for all portable pipe and bolt machines and hand pipe tools.

Belsaw Machinery Co.

315 Westport Rd., Kansas City 2, Mo. Instruction manuals on the operation of oneman and larger portable sawnills; include instructions on maintenance.

Bendix Products Division

(Bendix Aviation Corp.) South Bend 20, Ind.

Vacuum power service manuals: No. 1, vacuum power equipment (comprehensive); No. 2, identification data on Bendix B-K reactionary cylinders; No. 3, Bendix Hydrovac (1st and 2nd series): No. 4, Model C (3rd series) Bendix Hydrovac. Test manual on use of Hydrovac analyzer.

Bendix Radio

(Div. Bendix Aviation Corp.) Baltimore 4, Md.

Two-Way Radio Communications Equipment MRT-6 Trafficmaster Instruction Man-

C. L. Berger & Sons. Inc.

37 William St., Boston 19, Mass.

INSTRUCTION BOOKS

Field Adjustments of Berger Engineering and Surveying Instruments: Care and adjustment of transits, levels and plane table Alidades. 90 pages—price \$1.50.

Use and Care of the Transit-Level: 54 pages —price \$1.75.

Use and Care of the 12-Inch Dumpy Level: 40 pages-price \$1.75.

Use and Care of the Service Transit Level (Farm Level): 28 pages—price \$1.50.
Use and Care of the Berger Locke Hand

Level: 8 pages-price 35c.

Solar Ephemeris and Polaris Tables: Directions for making astronomical observations with engineer's transit and computing results. 123 pages—price 50c.

Black & Decker Mfg. Co.

Towson 4, Md.

(See advertisement, page 126)

Use and care handbook: Electric drills; portable electric Quick-Saws; portable electric sanders; valve reconditioning equipment. Guide book on 6- and 8-in. electric saws. Form 42: Use and care of electric hammers.

Blaw-Knox Div.

(Blaw-Knox Company) 2028 Farmers Bank Bldg, Pittsburgh 22, Pa. (See advertisements, pages 60, 61)

Bulletin No. 2373: Maintenance and Care of Blaw-Knox Clamshell Buckets.

Boston Woven Hose & Rubber Com-

P. O. Box 1071, Boston 3, Mass. (See advertisement, page 166)

Manual on splicing transmission and conveyor belts in the field.

Bowers Battery & Spark Plug Co.

Box 1262, Reading, Pa.

INSTRUCTION SHEETS AND BULLETINS

Basic Rules for Battery Care and Maintenance How to Get Maximum Performance from Bowers Spark Plugs Battery Service Manual

Briggs & Stratton Corp.

2711 North 13th St., Milwaukee 1, Wis,

OPERATING MANUALS AND PARTS CATALOGS on all models Briggs & Stratton engines.

Broderick & Bascom Rope Co.

4203 Union Blvd. St. Louis 15, Mo.

Wire Rope—Shows the various grades and construction of B&B wire rope. Riggers' Handbook—Shows various B&B standard, as well as braided, safety slings.

Brooks Load Lugger

2020 Davenport Rd., S. E., Knoxville 8, Tenn. Brooks Load Lugger (Model CH-150 through CH-600): Instructions for the installation, operation and care.

Parts List

Wm. Bros Boiler & Mfg. Co.

1057 Tenth Ave., S. E., Minneapolis 14, Minn. Instruction and Parts Manuals (List serial No. and model No.)

Rotary Snow Plows: Bros Rotary Sno-Flyr, Model M & M9 Truck and Motor Grader mounted.

Push Plows: One-Way and Reversible Blade Snow Plows

Circulator: Asphalt Heaters—Semi-Trailer and Skid Models Steam Generators: Asphalt Tank Car Heaters
—Semi-Trailer and Skid Models

Distributors: Asphalt

Spray Bars: Asphalt Distributors

Pneumatic Tired Rollers: Models 45 Straight Wheel, 45 Wobble Wheel, 67 Straight Wheel, 65 Wobble Wheel Rollers, 35-Ton and 50-Ton Giant Pneumatic-Tired Compactors

Tamping Rollers: Sheepsfoot

Track Pin Presses: Semi-Trailer and Sta-

Dozers: Straight and Angle Dozers—Caterpillar D-4 and D-6, International TD-14 and Allis-Chalmers HD-10.

Bucyrus-Erie Company

South Milwaukee, Wis.

(See advertisements, pages 140, 141)

Bulletin BK-I-E: Ways to Make Your Excavator Work Harder, Live Longer Wall Chart: Bullgraders and Bulldozers Wall Chart: Dozer-Shovel

Wall Chart: Hydrocrane

The Buda Company

154th & Commercial Ave., Harvey, Ill. (See advertisement, page 142)

INSTRUCTION AND PARTS BOOKS

Diesel and gasoline engines, earth drills, material handling equipment, lifting lacks. Instructions and parts books for all models give size, type, serial number and B/M number, if possible. This information is taken off the name plate of Buda engine.

Gasoline Engines	Instruction Book
HP, K, L & LO Series	1387-A
"B" Series, 4 & 6 Cyl.	1490-A
"MO" Series, 4, 6 & 8 Cyl.	1532
PC-PCS-1879 & PC-PCS-250	5 1559

Diesel Engines	Instruction Book
4DC-645	1386
6DT-317	1420-A
6DT-415, 6DT-DTS-468	5
6DT-DTS-496	1427-A
"BD" Series, 4 & 6 Cyl.	1434-B
8DC-DCS-1125 & 8DC-DCS	i.e.
1290	1469
6DC-DCS-844 & 6DC-970	1505-A
6DC-DCS-1879 & 8DC-DCS	
2505	1511-A
6DA-DAS-844, 9DA-DAS	
1125, DA-799 & 1290	1546-A

1127, 17,1777 & 1270	
Marine Engines	Instruction Book
HM-205, 298 & KM-428 (U	.S.
Coast Guard Only)	922
BDMR Series, 4 & 6 Cyl.	
6 DCMR-1879	1445

Gasoline Engines			Repair Parts Catalogs		
HS6,	DS-6,	DW6,	BUS,	BA6,	590-K
GL	6. GF6	. GF63	8		

- Send Serial Number -

Buda Company . . . Continued

Gasoline Engines	Repair Pari
H-173, 199, 205, 217, 260, 298,	
325 & J-214	794-F
JV. JX. JH. JK & JL. 4 & 6 Cyl.	814-J
WTU, KTU, ET, YTU, BTU,	
FR, Etc.	822-K
LO-525	1082-C
HP-205, 217 & 234, 4 Cyl.	1120-H
HP-260, 298, 326, 351, 6 Cyl.	1121-1
K-325, 369, 393, 428 & L-525	1142-F
"MO" Series, 6 & 8 Cyl.	1324-A
"B" Series, 4 & 6 Cyl,	1339-B
4MO-645	1419

Diesel Engines	Repair Parts Catalogs
"B" Series, 4 & 6 Cyl.	1338-B
6DC-DCS-844 & 6 DC-970	1340-C
4DC-645	1398
8DC-DCS-1125 & 8DC-1290	I410-A
6DA-DAS-844 & 6DA-779	1519-A

Marine Engines	Repair Parts Catalogs
BDMR Series, 2, 4 & 6 Cyl. HM-172, 199, 205, 217, 260,	1458
298, 326 KM-369, 393, 428 & LM-525	1052-A 1058-A

The Buffalo-Springfield Roller Company (Formerly Buffalo Steam Roller Co. and Kelly-Springfield Roller Co.)

1210 Kenton St., Springfield, Ohio

Service manuals (instructions and parts lists) available on all current models. Manuals also available on many older models no longer being produced.

The Burch Corporation

Crestline, Ohio

Maintenance, Instructions and Parts Manual: Ross single-blade snow plow, Model R-23.

Byers Machine Company

Ravenna, Ohio

	THESE LINE THE VAN
Machine	Book
	No.
Model No. 55 Crawler Crane	1031
Model No. 61-A Crawler Crane	849
Model No. 61-W Traveler Crane	1248
Model No. 62 Crawler Crane	138
Model No. 63 Crawler Crane	552
Model No. 65 Crawler Crane	442-S
Model No. 70 Crawler Crane	730
Model No. 71 Crawler Crane	1049
Model No. 71-W Traveler Crane	949
Model No. 75 Crawler Crane	442-AS
Model No. 80 Crawler Crane	929
Model No. 83 Crawler Crane	838
Model No. 83-CC Mobile Crane	249
Model No. 85 Crawler Crane	828

					Instruction
Mac	hine				Book
Model	No.	100	Crawler	Crane	429
Model	No.	125	Crawler	Crane	230

B.C. Ir. Crawler Crane 732 Books contain lubrication charts and parts

Carver Pump Company

1056 Hershey Ave., Muscatine, Iowa

INSTRUCTION BOOKS AND PARTS LIST

Engine-Driven Self-Priming Centrifugal Pumps with A.G.C. ratings from 4M to 240M; in sizes from 11/2 in. through 10 in. Self-Priming Centrifugal Pumps for electric motor drive or frame-mounted for belt drive.

Caterpillar Tractor Co.

600 W. Washington St., Peoria 8, Ill.

(See advertisement, page 11)

Owners of Caterpillar products may obtain detailed operator's instruction books from their local Caterpillar dealers. Maintenance and operating instructions of more general nature are included in a series of full-color cartoon-style booklets. These booklets, listed below, are available either from Caterpillar Tractor Co. or its dealers.

MAINTENANCE GUIDES Engines, Electric Sets and

Marine Engines	Form	30246
Track-type Tractors	Form	30247
Motor Graders	Form	30248

OPERATOR'S HANDBOOKS

Tractors, Wheel-type and Form 30061 Track-type Form 30228 Motor Graders

Challenge Manufacturing Co.

c/o Cook Bros. Equipment Co., 1815 N. Broadway, Los Angeles 31, Calif.

Challenge Truck Mixers-3-yd; 31/2-yd; 4yd; 5-yd: 6-yd and 61/2-yd sizes: Service manual and parts list available for all sizes. Give size, year, if possible.

The Champion Rivet Co.

10917 Harvard Ave., Cleveland 5, Ohio (See advertisement, page 104)

BOOKLETS AVAILABLE:

"How to Choose and Use the Correct Electrode"

Manual covering build-up and hard facing electrodes and applications.

Chicago Pneumatic Tool Company

6 East 44th St., New York 17, N. Y.

(See advertisement, page 227)

INSTRUCTION AND PARTS BOOKS

Compressors: Portable, stationary

Electric tools: Concrete vibrators, drills, exhaust ventilators and blowers, grinders, reamers, sanders, saws, woodborers

Pneumatic tools: Backfill tampers, chipping hammers, clay spades, concrete vibrators, drills, grinders, hammer drills, hoists, rivet busters, rivet hammers, sanders, sheeting drivers, sludge pumps, sump pumps, winches, woodborers, wrenches

Rock drills: Air feed legs, demolition tools (pavement breakers), diamond blast hole drills, diamond core drills, drifters, drill jumbos, sinker drills (hand-held blast hole), stopers, wagon drills

Chrysler Corporation

Industrial Engine Division, 12200 E. Jefferson Ave., Detroit 31, Mich.

MAINTENANCE AND PARTS MANUALS (Price \$1 each):

D-12154 for 6-cylinder industrial engine Models 5, 5A, 6, 6A, 7, 7A, 8, 8A. D-12155 for 8-cylinder engine Model Ind. 12. D-13406 for 6-cylinder Models Ind. 13A. 14A, 15A. D-14054 for V-8 engine Model

Cleco Division (Reed Roller Bit Co.) 5125 Clinton Drive, Houston 20, Texas

Portable Air Tools: Chipping hammers, drills, grinders, rivet busters, riveting hammers, backfill tampers, sump pumps, woodborers, wrenches, sanders, paving breakers, sheeting drivers, spike drivers and masonry drills. Instruction and parts sheets available; advise size and type of tool.

Moil Points and Steels for Contractors: Heat-treating instructions available for Dallett Steels.

Cleveland Rock Drill Division (Le Roi Company)

1250 Berea Road, Cleveland 11, Ohio

Rock Drills and Air Tools: Wagon drills, hand-held sinkers, paving breakers, clay diggers, tampers, Tractair attachments. maintenance instructions and illustrated parts list. Specify model and serial number.

Cleveland Trencher Company

20100 St. Clair Ave., Cleveland 17, Ohio

INSTRUCTION, LUBRICATION AND PARTS BOOKS available for the following moels:

Trenchers, Models 92, 95, 110, 140, 320 Backfiller-Tamper-Side Crane, Model 80

-Send Model Number -

Clipper Manufacturing Company

2800 Warwick, Kansas City 8, Mo.

(See advertisements, pages 63, 1774

INSTRUCTION BOOKS AND PARTS LISTS

Masonry Saws (Currents Models)-Models J through C-Parts Price List: No. 129A

Masonry Saws (Discontinued Models)-Models J through C-Parts Price List: No. 170

Masonry Saws-Instruction Booklet: No. 85A Concrete Saws-Operating Instructions: No 9A

Concrete Saws-Parts Price List (All Models): No. 22C

Clyde Iron Works, Inc.

Duluth 1, Minn.

(See advertisement, page 228)

REPAIR PARTS AND OPERATING MANUALS Band friction hoists; Clyde Handi-Crane Model U; duplicate parts for Clyde hoists,

Frame 3 and Frame 4; Model 21 tandem roller.

Similar manuals available for other Clyde products, but usually made up individually for each machine.

Coffing Hoist Company

800 Walter St., Danville, Ill.

PARTS LISTS

Quik-Lift (electric hoist), Parts List EP-4 Safety Pull (ratchet lever hoist), Parts List RLP-2

Mighty Midget Puller (lightweight puller), Parts List MPP-2

Hoist-All (all purpose stand hoist), Parts List HAP-2

Model YC (spur gear hoist), Parts List YCP-2 Assembly blueprints on all products

Commercial Shearing & Stamping Co.

Youngstown 1, Ohio

11S and 16S

(See advertisement, page 56)

Bulletin H-5: Service instructions on hydraulic pumps and motors of the D series. Service instructions and parts list on manually operated Commercial hydraulic pumps.

Construction Machinery Companies

P. O. Box 120, Waterloo, Iowa (See advertisement, page 226)

INSTRUCTION BOOKS AND PARTS LISTS

CMC Wonder Tilting Concrete Mixers-31/s and 68 CMC Non-Tilt Concrete Mixers-31/2S, 6S, CMC Central Plant Concrete Mixers-16S. 28S, 56S, and 84S

CMC Hoe-Type Plaster, Mortar and Bituminous Mixers-Wonder Hoe-Boy, Wonder DeLuxe 6, Super Six, No. 6 Mechanical Hoeman, No. 10 Mechanical Hoeman, No. 6 Rituminous and No. 10 Bituminous Truck Mixers:

CMC Transcrete Truck Mixers-3 yd and 51/2 vd Hoists

CMC Builder Hoists, Light-Duty, Handy, General Utility and Material Elevator Pumps

CMC Self-Priming Centrifugal Pumps-4M, 7M, 10M, 15M, 20M, 30M, 40M, 90M, 125M, 240M and H2-SP

CMC Diaphragm Pumps-FD-3 and FD-4 CMC High-Pressure Pumps-H-4 CMC Pressure Flo-2 in. to 6 in.

Construction Machinery Sales Co.

P. O. Box 120, Waterloo, Iowa

INSTRUCTION BOOKS AND PARTS LISTS CMC Radial Arm Saws

CMC Batching and Placing Equipment CMC Roll-O-Hoists CMC Jetcreters

CMC Masonry Saw

Continental Motors Corporation 205 Market St., Muskegon, Mich. (See advertisement, page 168)

Diesel Engine		
Operator's Manual	Form	1MX 3132
Operator's Manual		
"L" Head Engines	10	IMX 6132
Service Manual		
R600 Series	10	IMX 6130
Instruction Manual		
for N Series	90	IMX 6125
Service Manual,		
engines and power units	9:0	IMX 6121
Mechanic's Manual		
R6572 Transportation	00	4151
Mechanic's Manual		
T6427 Transportation	09	53051
Mechanic's Manual		
B6427 Transportation	0.0	51051

Crescent

(See Delta Power Tool Division)

Cummins Engine Company, Inc.

Columbus, Ind. (See advertisement, page 133)

OPERATION AND MAINTENANCE MANUALS Engines Bulletin No. 6134-C A Diesel Engine

JS Diesel Engine 6229-B

Engines	Bulletin N
H, HS, HR, HRS, NH, NHS,	
NHRS Diesel Engines	6333-A
NHH Horizontal Diesel Engir	e 6330-A
NVH, NVHS Diesel Engines	6335
K, KO, L Diesel Engines	6147-D
LR-GAS Engine	6331

Cummins Portable Tools (Div. of Cummins-Chicago Corp.) 4740 Ravenswood Ave., Chicago 40, Ill.

OPERATING INSTRUCTIONS AND PARTS LISTS Magic-Pivot Maxaws and Model 600 Portable Saw

Drills: Models 190, 202, 225, 425, 430, 435 Polisher: Model 105

Dallett

(See Cleco Division)

Davenport-Besler Corp.

(See Frink Sno-Plows)

Dayton Pump & Manufacturing Co.

500 N. Webster St., Dayton, Ohio Wall chart explaining operation of Rapidayton axial-flow electric water pump.

Dean Hill Pump Company

4000 E. 16th St., Indianapolis 7, Ind.

Manual No. 3001: Installation and operation of Dean Hill horizontal centrifugal

Bulletin 450: Erection and operation of Type DH steam turbines.

Delta Power Tool Div.

(Rockwell Manufacturing Co.) 600 E. Vienna Ave., Milwaukee 1, Wis. (See advertisement, page 213)

DUCTION MANUAL INDEX BY SERIES

INSTRUCTION MANUAL INDEX BY SERIES	
Pa	rts
Mar	ual
Series Description Nun	nber
22-B Planer	
Delta 13x5-in. Thickness Planer	738
Grinder Attachment for 13-in. Planer	741
Jointer Attachment for 13-in. Planer	742
28-B Band Saws	
No. 28-305 Metal and No. 28-205	
Wood 14-in. Cutting Band Saws	

(No. 880 and 890) 1517 No. 28-852 Screw Feed Attachment for 14-in. Band Saw No. 28-350 Delta 20-in. Wood Cutting

Band Saw No. 28-810 Sanding Attachment for 14- and 10-in. Band Saws

33-B Radial Saws No. 20-A Multiplex 1727 No. 30-A Multiplex No. 40-B Multiplex 1749 14-16-in. Radial Saw 1756

Delta Power Tool . . . Continued

Excited w	ONCI 1001	- Ollettine G
Series	Description	Number
34-B Cir	cular Saws	
No. 3-	4-405 10-in. Tilting	Arbor Saw
(145	0 Unisaw)	1501
No. 1	454 Installing Motor	Cover on
1450	Unit	1503
Blade	Guards for 1450 Unit	1506
Nos. 3	4-305 and 34-307 10	in. Tilting
Tabl	e Circular Saws (11	60) 1507
37-B Joir	iters	
Nos. 3	7-205 and 37-207 6-in	n. Jointers 1535
No. 37	-301 8-in. Jointer	1739
40-B Scr	oll Saws	
Nos. 4	0-205 and 40-305 2-	I-in. Scroll
Saws	(1200)	1512

No. 1442 Belt Guard and No. 1444

Variable Speed Attachment for 24-in.

No. 43-205 Shaper (1340) Sash & Cabinet Cutters

Scroll Saw

43-B Shapers

Dempster Brothers, Inc.

Knoxville 17, Tenn. (See advertisement, page 159)

Pneumatic Shovels—Dempster-Diggster Hydraulic Crowd and Hoist Excavator and Loader: Folder No. 1032

Crawler Morels—Dempster - Diggster Hydraube Crowd and Hoist Excavator and Loader mounted on the International Harvester TD-9 Crawler Tractor: Folder No. 1136

Detroit Diesel Engine Division (Gen-

eral Motors Corp.) 13400 W. Outer Drive, Detroit 28, Mich. (See advertisement, page 65)

Operators handbooks and Maintenance Manuals on GM Series 71 and 6-110 diesel engines are available through GM diesel distributors and dealers. The factory will gladly furnish you the name and address of your nearest GM diesel sales and service outlet.

Diamond Iron Works, Inc.

Minneapolis 11. Minn.

Request manual for particular equipment being operated by model and serial numbers.

Henry Disston & Sons, Inc.

Philadelphia 35, Pa.

Operator's Hand Book S-61-5001 Parts Catalog S-61-5002N DA-211 Chain Sau: Operator's Hand Book Operator's Hand Book 271-001 BX6 Chain Sharpener: Operator's Hand Book Operator's Hand Book 682-3-51-2M	DO:101 Chain Saw:	
D.A.211 Chain Sau: Operator's Hand Book 271-001 Parts Catalog 271-002 E3C6 Chain Sharpener:	Operator's Hand Book	\$-61-5001
Operator's Hand Book 271-001 Parts Catalog 271-002 E3C6 Chain Sharpener:	Parts Catalog	S-61-5002N
Parts Catalog 271-002 E3C6 Chain Sharpener:	DA-211 Chain Saic:	
E3C6 Chain Sharpener:	Operator's Hand Book	271-001
	Parts Catalog	271-002
Operator's Hand Book 682-3-51-2M	E3C6 Chain Sharpener:	
	Operator's Hand Book	682-3-51-2M

Drott Manufacturing Corporation

3841 W. Wisconsin Ave., Milwaukee 8, Wis.

INSTRUCTION AND PARTS MANUALS

Bulldozers and Grubber Blades for TD-9, TD-14A and TD-18A Tractors

Rullclam Shovels for TD-9, TD-14A and TD-18A Tractors

Skid-Shorels for TD-9, TD-14A and TD-18A Tractors

Tractor Crane (Go-Devil)

Duff-Norton Manufacturing Company

P. O. Box 1889, Pittsburgh 30, Pa.

OPERATING, MAINTENANCE AND SPARE PARTS

Available on all Duff-Norton, Duff, Norton and Barrett jacks. Give model number of jack.

E

Eagle Iron Works

Des Moines 4, Iowa

1549

1546

Bulletin No. 100: Parts book and operator's manual on screw-type washers and classifier-dehydrators for sand and gravel.

Electric Tamper & Equipment Co.

(See advertisement, page 11%)

INSTRUCTION SHEETS AND PARTS LISTS

Internal type concrete vibrators of the flexible shaft type, gas engine-driven and electric motor-driven.

External vibrators such as hin vibrators, vibratory pipe machines, vise-type vibrators and all of the electric motor-driven, revolving unbalancing weight type.

lackson portable gas electric plants.

Jackson railway tie tampers and Jackson multiple tamper.

Erie Steel Construction Company

P. O. Box 1031, Eric, Pa.

Repair part information and drawings available on all equipment listed below. Give serial number of plant and description. If used equipment, state from whom purchased.

Erie Bins, Aggregate and Cement

Erie Cement Silos Erie Weighing AggreMeters & Cemeters

Erie Material Elevators

Frie Strayer Portable Concrete Mixing Plants 2-Line Clamshell Buckets, Single-Line Hook-On Type Clamshell Buckets, Motor-Driven Clamshell Buckets, Dragline Buckets.

Instruction and Parts Lists for all models and styles. Give serial number and capacity of your bucket.

Euclid Road Machinery Co.

Cleveland 17, Ohio

(See advertisement, page 9)

Parts books are available for all models. He sure to give model number and serial number of subject unit. Requests written on company stationary only will be honored for parts books.

Maintenance Manuals Lubrication Charts

COLI	115 MORGER
82FD	FD Models
8TD	FFD Models
2011)	Twin Engine Scraper
3177	Single Engine Scraper
46TD	Leader
9LDT	
10LDT	Operator's Manual
25FDT	FD and FDT Operator's
43FDT	Handbook
1FFD	

Maintenance Pamphlets

Air Steering Booster

Engine Care and Maintenance

Differential (Eaton)

TG-604 & TG-607 Transmission Tire Care and Maintenance

Single Plate Toggle Clutch

Single Shim Type Clutch

Wheel Wind-16A and 17A

5F-1220 Transmission

5A-1120 Transmission

10F-1220 Transmission

10C-1120 Transmission

Euclid General Lubrication Pamphlet

Eveready BrikSaw Company

1509 S. Michigan Blvd., Chicago, 5, Ill.

How to Cut Blade Costs in Masonry Cutting: Booklet showing how to select and use the exactly right masonry blade for every material and how to run blade cost cutting tests. B-169

General Circular on brick saws, dry abrasive blades, wet abrasive blades, diamond blades, B-16

General information on the new Reinforced Abrasive R'ade ETF-303, B-176

General Blade Operation Information, blade recommendations, blade costs. B-177

F

Fageol Heat Machine Company

5725 Mt. Elliott, Detroit 11, Mich.
Instruction, Maintenance and Parts Man-

Fageol PW-189 Heat Machine Fageol VO-168 Heat Machine

Federal Motor Truck Company

Detroit 9, Mich.

OWNERS SERVICE AND PARTS REFERENCE

- Send Model Number -

MANUALS:

Style Liner Series: heavy-duty models.

Fisher Research Laboratory, Inc.

1961-65 University Ave., Palo Alto, Calif. Manuals on operation of M-Scope electronic pipe locator and leak detector.

Flexible Road Joint Machine Co.

Warren, Ohio

OPERATING INSTRUCTIONS AND PARTS LISTS for Flex-Plane:

Mechanical joint installing machines; automatic spray-curing machines; Panama and Detroit special finishing machines; mechanical dowel and te-bar installer.

Flexible Steel Lacing Company

4607 Lexington St., Chicago 44, Ill.

(See advertisement, page 222)

Flexeo Belt Fasteners: Illustrated directions, Bulletin F-100

Flexco Hinged Belt Fasteners: Illustrated directions, Bulletin HF-500

Alligator Belt Lacing: Illustrated directions, Bulletins A-60 and A-70

Alligator V-Belt Fasteners: Illustrated directions, Bulletin V-211

Flex V-Belt Fasteners: Illustrated directions No. V-13: Bulletin V-14

Flexible Tubing Corporation

New Whitfield St., Guilford, Conn.

Spiratube M and Ayrtube coated fabric tubing for mine and tunnel ventilation.

Construction Book C2-2: How to install, how to connect, how to repair.

Foote Company, Inc.

(Subsidiary Blaw-Knox Co.) Nunda, N. Y.

(See advertisement, page 39)

SERVICE AND OPERATOR'S MANUALS
Multi-foote 34E Duomix Paver
Multi-foote 34E Single Drum Paver
Multi-foote 27E Single Drum Paver
Adnun Black Top Paver

Foundation Equipment Corporation

38th Ave. & 10th St., Long Island City 1, N.Y.

OPERATING AND MAINTENANCE INSTRUCTIONS
Wellpoint Dewatering Systems: For wet
excavation work with pumping units in
sizes from 4 to 10 in. inclusive.
Dust Control Systems: For rock drilling

operations-available in various sizes.

Frink Sno-Plows, Inc.

Clayton, N. Y.

Snow plows for motor trucks: When requesting parts manual, furnish complete model and serial number, e.g., Plow—448SP 12KG: Leveling using—10FHR 60ZB-KG; Hydranlie Unit—P21S-44D-189KG. Specify the make, model, year and type (4x2, 4x4) of motor truck on which equipment is installed, e.g., Ford, F-7, 1951 Marmon-Herrington 4x4.

G

Number

Galion Iron Works & Mfg. Co.

Calion, Ohio

(See advertisement, page 167)

Instruction Books and Parts List With Lubricating Instructions Motor Grader:

Model	118	20)[9
Model	116	20	017
Model	104	20	021
Model	103	20	001
Model	102	20	001
Model	203	20	020
Model	202	21	120
Model	303	20	118
1	Roller	Numbe	r
Chief		TM5-1100 &	1100A
Warrior		2013	
10-14-T	on Tandem	744	
10-14-T	on Tandem	2019	
8-12-T	on Tandem	744	
5-8-To	n Tandem	2019	
5-8-To	n Tandem	944	
3-5-To	n Tandem	2014	
3-5-To	n Tandem	2022	
Portable		2005	
Portable		2022	
Trench		2023	

Always give serial number. Above list is for equipment manufactured since 1944.

Gardner-Denver Company

Quincy, Ill.

Portable and stationary compressors: Instructions and parts lists for all models obtainable on receipt of serial number of the machine.

Rock drills, drifters, wagon drills, paving breukers: Parts lists available with information as to what type of tool is in question. Air tools: Clay diggers, backfill tampers, air hoists, sump pumps, etc. Instructions and parts list booklets.

Centrifugal and reciprocating pumps: Instructions and parts lists; include serial number.

Also offers recommended spare parts lists.

Gar Wood Industries, Inc.

Wayne, Mich.

Parts and Instructions Books Buckeye 70 Excavator Buckeye Ditcher-Models 12, 48, 51, 301, 302, 306, 312, 402, 406, 407, 410

Buckeye 616 Hi-Way Widener

Buckeye Finegrader Buckeye Spreader

Gar Wood Scraper: Models 23, 25, 400, 508, 511, 515, 517, 524, 528, 620, 625

Gar Wood Tractor Equipment

Gar Wood Cable Control Units: A-C—

CU2, HD-10, 14, 19; Cletrac—CU-2, TD
18: Models 151 and 281

Buckeye Bulldozer and Trailbuilder: A-C and Cletrac—HD-7, 10, 14

Gar Wood Hydraulic Tipdozer and Dozecaster: HD and HT 51, 52, 53, 203; A-C-HD-7, 14, 19

Gar Wood Cable Tipdozer and Dozecaster:
A-C—CT & CD 101, 153, 191, 192

Busheve G. I. D. Cable Control Unit Single

Buckeye G.L.D. Cable Control Unit Single and Double Drum: A-C, Cletrac, International—HD-7, 10, 14

General Electric Company

1 River Rd., Schenectady 5, N. Y.

(See advertisement, 2nd Cover)

Manual GET-1125B: How to Maintain Electric Equipment. Price \$3.

General Electric Company

Radio Communications Section, Electronics Park, Syracuse, N. Y.

Two-way radio (mobile and stationary equipment) instruction books and parts let. Indicate model and type number of equipment.

General Electric Company

Welding Department, 166 Broad St., Fitchburg 8, Mass.

Manual GET-1123: How to Maintain Welders

General Excavator Company

Marion, Ohio

Manual G-4819: Type 31—Model 310 (¾-yd) Instruction and Lubrication

Manual G-5005: Type 42—Model 420 (1-yd) Instruction and Lubrication Book

Manual G-5108: Type 32—Model 320 (34-yd) Instruction and Lubrication Book

Gilson Brothers Company

Fredonia, Wis.

INSTRUCTION BOOKS AND PARTS LIST 3½-ST tilters. 3½-S non-tilts, 6-S tilter, 6-S, 11-S, 16-S non-tilts.

Mortar and plaster mixers, 3-cu ft models, 6 cu ft models,

- Send Serial Number -

Glass Fibers, Inc.

1810 Madison Ave., Toledo 2, Ohio INSTRUCTION BOOK

Underground pipe wraps-Glass-fiber reinforcing and outer wraps for corrosion, soil and backfill damage.

Gledhill Road Machine Company

Galion, Ohio

(See advertisement, page 146)

OPERATING AND MAINTENANCE MANUALS Snow Plows, Line Markers, Graders, Road Shapers.

Goodman Manufacturing Company

Halsted St. at 48th, Chicago 9, Ill. Conway Shovels (tunnels)-Types 75 and 100: Lubrication charts, parts catalogs. Locomotives (tunnel haulage) - Trolley, trolley and storage battery: Lubrication

B. F. Goodrich Company

manual Akron, Ohio

(See advertisement, page 1)

Multi-V Belt Engineering Handbook: Manual on procedure to calculate correct Multiple V-belt drives for industrial machinery. Stock No. O-7754-GL

Vibropad Instruction Booklet: Describes step in installing vibration-absorbing pads for heavy machinery.

Care and Maintenance of Goodrich V-Belt Drives

Goodrich Conveyor and Elevator Belting: Installation and maintenance manual,

Gorman-Rupp Company

305 Bowman St., Mansfield. Ohio

Bulletins 8CP-11, 8CP-21: Installation, operation and maintenance of contractors

Gradall Division, Warner & Swasey Co. 5701 Carnegie Ave., Cleveland 3, Ohio (See advertisement, page 125)

Gray Company, Inc.

60 11th Ave., N. E., Minneapolis 13, Minn. Portable Field Lubricating Equipment: Instructions on operation, maintenance and parts lists available on all models. Give model and serial numbers

Graco Lubrication Equipment: Instructions on operation, maintenance and parts list available on all models. Give model and serial numbers.

Greenlee Tool Co. (Division of Greenlee Bros. & Co.)

Rockford, III.

(See advertisement, page 162)

INSTRUCTION BOOKS AND PARTS LISTS

Bender instruction booklet; pipe pusher and power pump instruction booklet with parts list; cable puller instruction sheet with parts list; operating instructions and parts information on hydraulic knockout driver.

Griffin Wellpoint Corporation

881 E. 141st St., Bronx 54, N. Y. (See advertisement, page 224)

A digest of the basic principles of wellpoint systems and their application to de-watering wet excavations. Components of a wellpoint system and the fundamentals of planning, installing and operating the system are discussed and illustrated in detail. \$1.50 per copy.

Booklet free to contractors and engineers, if requested on letterhead.

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Harnischfeger Corporation

Milwaukee 14, Wis.

(See advertisements, pages 57, 194) CARE AND OPERATION MANUALS

Descriptio	N	Instruction
Model		Book
55	Truck Crane	RTC-5
150	Excavator	
150	Truck Crane	
255A	Excavator	
255A	Truck Crane	RTC-3
455A	Excavator	RX-7
555	Truck Crane	RTC-4
655B	Excavator	RX-6-1
855B	Excavator	RX-5-1
955A	Excavator	RX-8
1055A	Excavator	RX-3-1
1400A	Excavator	RX-4-1
1500A	Excavator	RX-4-1
1600A	Excavator	RX-4-1
-	Single Pass Stabilizer	RS-3
WA-300	Arc Welder	RW-6
WFA-300	Arc Welder	
WN-201	Arc Welder	
TH-200	AC Welding Transformer	RPW-20
T11-300 8	4	
TH-500	AC Welding Transformer	RPW-19-1
	AC Welding Transformer	
	AC Welding Transformer	
	AC Welding Transformer	
77-150 &		
11-200	AC Welding Transformer	RPW-16-1
TR-180A	AC Welding Transformer	RPW-17-1
TR-181	AC Welding Transformer	
TWH	AC Welding Transformer	RW-7
TWI	AC Welding Transformer	RW-8
TWR	AC Welding Transformer	RW-9A
TH-300		
HF	AC Welding Transformer	RPW-21
TH-302		

The Heil Co.	
3000 W. Montana St., Milwa	ukee 1, Wis.
INSTRUCTION MANUALS	Instruction
Machine	Manual
OC-6, OC-9, OC-12, OC-18 8	i i
OC-25 Cable Scraper	MR-2016-CS
MF-1A Cable Power Control	
Unit	MR-2105-PCU
HF-1A Cable Power Control	
Unit	MR-2106-PCU
S-2 Cable Power Control Unit	MR-2110-PCU
HR-2 Cable Power Control Uni	t MR-2111-PCU
LD-2 Cable Power Control Uni	t MR-2113-PCU
HT-95 Hydraulic Trailbuilder	RM-2306-HD
HB-95 Hydraulic Bulldozer	RM-2306-HD
HT-25 & HT-25W Hydraulic	
Trailbuilder	M-2307-HD &
HB-25 & HB-25W Hydraulic	>
Bulldozer	R-2308-1
HT-35 & HT-35W Hydraulic	
Trailbuilder	M-2307-HD &
HB-35 & HB-35W Hydraulic	
Bulldozer	R-2309-1
HT-60 & HT-60W Hydraulic	
Trailbuilder	M-2307-HD &
HB-60 & HB-60W Hydraulic	>
Bulldozer	R-2319-HD
HE-6TW Hydraulic Trail-	R-2311-HD &
builder	M-2317-HD
HE-6BW Hydraulic Bulldozer	1
H9-TW Hydraulic Trail-	R-2312-1-HD
builder	. 8c
H9-BW Hydraulic Bulldozer	M-2315-1-HD
H14-TW Hydraulic Trail-	R-2313-1-HD
builder	. &c
H14-BW Hydraulic Bulldozer	
CF-14TW Cable Trailbuilder	MR-2357-CD
CF-14BW Cable Bulldozer	MR-2357-CD
CE-18TW Cable Trailbuilder	MR-2359-CD
CE-18BW Cable Bulldozer	MR-2359-CD
CF-18TW Cable Trailbuilder	MR-2360-CD
CF-18BW Cable Bulldozer	MR-2360-CD
CE-14TW Cable Trailbuilder	MR-2361-CD
CE-14BW Cable Bulldozer	MR-2361-CD
CE-24TW & CF-24TW Cable	
Trailbuilder	MR-2362-CD

FTF & FTR Cable Trailbuilder / R-2363-CD & FBF & FBR Cable Bulldozer \(\) I-2364-CD TRO Tamping Roller 2C800 Heiliner Hi-Speed Prime Mover with MS-18 Trailer

CE-24BW & CF-24BW Cable

Bulldozer

Scraper

Scraper or MW-20 Trailer Bottom-Dump Wagon 2C500 Heiliner Hi-speed Prime

MR-2909-HST Mover with MS-13 Trailer Twin Cylinder, Double-Acting

Hydraulic Hoist Single & Twin Cylinder Single-Acting Hydraulic Hoist Hydraulic Telescopic Hoist

MR-2920 M-1436-HP

MR-2362-CD

R-2400-SR

M-1444-HP M-1554-HT Heiloader Hydraulic Tailgate IMR-1577

- Send Model Number -

Arch Torch

Welding Positioner

Model AA-1

Model AA-2

Appropriate lubrication charts included.

There is a small charge for a repair parts

AC Welding Transformer RPW-24

AC Welding Transformer RPW-24

RW-15

WP-2

RH1-4

RH3-3

HF

HE

TH-501

Electric Hoist

Electric Hoist

Heltzel Steel Form & Iron Co.

Warren, Ohio

Instructions on Helco: Road forms, curb, curb and gutter and sidewalk forms (give size and type, if possible), concrete buckets, batching plants, bulk cement plants, aggregate plants, accessories for these plants (give serial number).

Hercules Motors Corporation

Canton 2, Ohio

(See advertisement, page 148)

	1-6-
BX	Parts List
NX	Parts List
BX-NX	Operator's Handbook
ZX-5	Parts List
ZX-3	Parts List
ZX	Maintenance Manual
IX-3	Parts List
IX-5	Parts List
IX	Maintenance Manual
JX-4	Parts List
JX-4	Maintenance Manual
00	Parts List
OX	Parts List
OO-OX	Operator's Handbook
K-L-G-E	Operator's Handbook
TX	Parts List
TX	Operator's Handbook
QX	Parts List
JX	Parts List
JXL	Parts List
JXL-3	Parts List
QX	Maintenance Manual
JX-JXL	Maintenance Manual
RX	Parts List
RXL	Parts List
RXLDH	Parts List
WX-WXL	Maintenance Manual
RX-RXL	Maintenance Manual
TDX	Parts List
HX	Parts List
HX	Maintenance Manual
DIX-2	Parts List
DIX-2	Operator's Handbook
DIX-4	Parts List
DIX-6	Parts List
DIX-4-6	Maintenance Manual
DOO	Parts List
DOO	Maintenance Manual
DJX	Parts List
DJX	Maintenance Manual
DWX	Maintenance Manual
DWX	Parts List
DRX	Parts List
DRX	Maintenance Manual
DHX	Parts List
DRX-DHX	Diesel Desc. & Maint. Manual
DFX	Parts List
DFX	Maintenance Manual
DA 131110	D 1:

DNXV8

DNXV8

Parts List

Maintenance Manual

Hobart Brothers Company

Hobart Sq., Troy, Ohio

INSTRUCTION AND PARTS BOOKS Arc Welders Portable or Stationary Standard Gasoline-Engine-Driven Models with 1-3-6 or 12 KW Auxiliary Power

Self-Propelled Arc Welders Electric Motor-Driven Arc Welders AC Transformer-Type Arc Welders Please give serial number.

Homelite Corporation

Riverdale Ave., Port Chester, N. Y.

Self-Priming Centrifugal Pumps-Gasoline Engine Driven:

	Ope	rating, Ma	intenance
Model	and	Overhaul	Manual.
20 S11/2		L-337	
22 S1½		L-325	
23-S2		L-330	
24 S3		L-327	
Generators Gasalis	ne Fe	cina Deis	

	Operating, Maintenance
Model	and Overhaul Manual
20	L-338
22	L-324
23	L-329
24	L-326
25	L-333
24 High Cycle	L-326 plus
	Supplement 22188

Chain Saws-Electric:

		Oper	ating, Mai	ntenance
Mo	del	and	Overhaul	Manual.
ECS	-14		L-335	
ECS	-20		L-331	
Chain	Saws-Gasoli	ne:		

	Operating, Maintenance
Model	and Overhaul Manuals
20 MCS	L-340
26 LCS	L-344

Frank G. Hough Co.

Libertyville, Ill.

CURRENT PARTS AND OPERATING MANUALS Model HA "Payloader" Parts List beginning with s/n 23500 Form HA-51A Model HA "Payloader" Operating Manual beginning with s/n 23500 Form HA-50 Model HAH "Payloader" Parts List beginning with s/n 51400 Form HAH-2 Model HAH "Payloader" Operating Manual beginning with s/n 51522 Form HAH-1 Model HE "Payloader" Parts List beginning with s/n 55429 Form HE-5 Model HE "Payloader" Operating Manual beginning with s/n 55004 Form HE-3 Model HF & HFH "Payloader" Parts List beginning with s/n 81221 Form HF-3B Model HF & HFH "Payloader" Operating Manual beginning with s/n 81300 Form Model HY "Payloader" Parts Book beginning with s/n 17006 Form HY-3 Model HY "Payloader" Operating Manual beginning with s/n 17002 Form HY-1 Model HM "Payloader" Parts List beginning with s/n 90001 Form HM-2 Model HM "Payloader" Operating Manual beginning with s/n 90001 Form HM-3

Huber Manufacturing Co.

202 N. Greenwood St., Marion, Ohio

INSTRUCTION AND PARTS BOOKS

Available on all Tandem and Three-Wheel Rollers, Maintainers and Motor Graders, Give serial number.

Hyster Company

2921 N. E. Clackamas St., Portland 8, Ore. (See advertisement, page 14)

Instruction Books available on all Hyster products through Caterpillar Tractor dealers.

Independent Pneumatic Tool Co.

Aurora, Ill.

(See advertisement, page 175)

Service manuals include a line-cut and identified parts lists, along with operating and maintenance information.

Thor Paving Breakers		
No. 17 Service Manual	7434	
No. 23 Parts List	7465	
No. 24 Parts List	7450	
No. 25 Service Manual	7157	
Thor Clay Diggers		
No. 16		
No. 16T Service Manual	8026	
No. 18 Service Manual	7845	
No. 412 Service Manual	7810	
No. 412T Parts List	6908	
Thor Wagon Drill		
No. BWI Service Manual	7219	
No. 105 Drifter for Wagon Drill	6773	
Thor Backfill Tampers		
No. 55T Parts List	6661	
No. 66T Service Manual	6291	
No. 166T Service Manual	7968	
Thor Sump Pumps		
No. 361T Service Manual	5605	
No. 381T Parts List	4159	
Thor Cement Chipping Hammers		
Nos. 111, 122, and 133 Parts List	6681	
No. 144 Parts List	7286	
Thor Pneumatic Concrete Vibrator		
No. 521 Service Manual	7994	
Thor Concrete Surface Grinders		
No. 250D Parts List	4967	
No. 360S Service Manual	7983	

No. 360W Parts List

5710

Independent Pneumatic Tool Co. Continued

Thor Rock Drills	
No. 28 Service Manual	7741
No. 35 Service Manual	7799
No. 38 Service Manual	6540
No. 75 Service Manual	6885
No. 85B Parts List	7616
Thor Universal Electric Saws	
No. To Service Manual	7850
No. T7 Servere Manual	7820
No. T8 Service Manual	7824
No. T10 Service Manual	7821
No. T12 Service Manual	7822
Thor Electric Hammer	
U100 Service Manual	6185

Ingersoll-Rand Company

11 Broadway, New York 4, N. Y. (See advertisement, page 189)

INSTRUCTIONS AND PARTS LISTS

Gyro-Flo and Mobiliar portable compressors, All models: Give size and type, and serial number, if possible.

Stationary Compressors, All models: Give size, type and serial number, if possible.

Rock Drills, Jackhammers, drifters, wagon drills, passing locakers, piledrivers: Give type of tool.

Jackley and Quarrymaster: Parts lists available.

Detachable drill bits (Jackbits and Carset Jackbits): Instructions on reconditioning and rod fabrication and reconditioning. Wall charts available in certain cases.

Air Tools: Clay diggers, backnit tampers, sump pumps, unlity hoists, concrete vibrators, riveters, grinders, drills, woodborers, sanders, Impactools, wrenches, Instructions and parts lists.

Centrifugal Pumps (including Motorpumps): Instructions and parts lists.

Type T. TS, S, SS Diesel Engines: Instructions and parts lists, Give serial number.

International Harvester Company

180 N. Michigan Ave., Chicago 1, Ill.

(See advertisements, pages 136, 137)

CHS-2, service manual covering all industrial crawlers from the TD-6 to the TD-18A CHS-146, service manual covering the industrial TD-24

CHS-204, covering International diesel fuel systems

Iroquois Equipment (See Posey Iron Works)

Irvington Form & Tank Corporation

20 Vesey St., New York 7, N. Y.

(See advertisement, page 164)

Atlas Speed Forms: 40-p manual describing how to use forms and accessories. Also contains to photographs illustrating formion of various types of concrete structures.

Atlas Compo Forms: 4-p circular illustrates

Atlas Compo Forms: 4-p circular illustrates this combination plywood and steel form and accessories.

Atlas Forms: Prints covering typical jobs of all types formed with Atlas Speed and Atlas Compo Forms.

Jackson Vibrators, Inc.

Ludington, Mich.

(See advertisement, page 118)

INSTRUCTIONS AND PARTS LISTS

Jackson Vibratory Paving Tube; Jackson vibratory compactors: Jackson portable gaselectric plants.

J

Jaeger Machine Company

Columbus 16, Ohio

(See advertisements, pages 6, 184)

Portable and Stationary Compressors: Instructions and parts lists for all models.

Self-Priming Centrifugal Pumps, 1½ to 10 In.: Instructions and parts list for all models including high-pressure pumps and 3AY diaphragm pump.

Truck Mixers: Instructions and parts lists on all models.

Portable Concrete Mixers and Plaster Mixers: Instructions and parts lists on all models. Paring Equipment: Instructions and parts lists on Self-Propelled Aggregate Spreader. Type X and Type H Finishers and Concrete Spreaders.

Jeffrey Manufacturing Co.

Columbus 16, Ohio

(See advertisement, page 32)

Catalog A418: Complete chain and sprocket information, including descriptions, ultimate strengths horsepower ratings, working values and weights.

C. S. Johnson Company (Kochring Subsidiary)

P. O. Box 71, Champaign, 111.

INSTRUCTION BOOKS

Johnson all-welded clamshell buckets Johnson roadbuilders portable batching plants

Johnson concrete plants

Jones & Laughlin Steel Corp.

401 Liberty St., Pittsburgh 30, Pa.
Wire Rope Is a Machine: Booklet covering

proper selection, installation and maintenance of wire rope and slings.

Joy Manufacturing Company

Henry W. Oliver Bldg., Pittsburgh 22, Pa.

INSTRUCTION MANUALS

Compressors: Portable, semi-portable, sta-

Rock Drills: Hand-held drills, paving breakers, backfill tampers, spaders, sheeting drivers, wagon drills, blast hole drills, damond core drills, drill jumbos, hydraulic drill-supports, line drilling rigs.

Hoisting Equipment: Contractors' singledrum utility hoists—gasoline, air or electric powered.

Air Motors: Reciprocating and rotary Shovel Loaders

K

Kelly-Springfield Roller Co.

(See Buffalo-Springfield Roller Co.)

King Manufacturing Corporation 3146 W. Chicago Ave., Chicago 22, Ill.

Bulletin 250: Operating instructions and repair parts list on King hoists.

Koehring Company

3026 W. Concordia Ave., Milwaukee 16, Wis, (See advertisements, pages 160, 161)

INSTRUCTION BOOKS

Machine	ln	struction Book	
*205-1A crawler crane	SD	168	
304-1A crawler crane	SD	97 and 104 E	Κ
304-1A & 1B truck			
crane	141	Ex	
*304-2A cruiser crane	SD	147A.	
*605-1B crawler crane	SD	161	
*1005-1A crawler crane	SD	216	
°16E-1A & 1B Twin-			
batch paver	SD	211	
34E-1A Twinbatch paver	SD	125	
W60 Dumptor	SD	136	
*28S-3B & 56S-1A			
construction mixer	SD	200	
*10-1A & 50-2A Mud			
Jack	SD	149	
*2A longitudinal finisher	SD	206	
*215-1B Railaid			
propulsion car	SD	218	
2-yd concentric zone			
mixer	420	4D371	
3-yd concentric zone			

4-yd concentric zone mixer 4204D472 *Book also contains lubrication chart

*Book also contains lubrication chart LUBRICATION CHARTS

mixer

Machine Lubrication Chart
205-1B crawler crane SD 168A

4204D575

-Send Model Number -

model)

*No charge to owners of equipment

304-1A crawler crane	SD 209	The Lauson	Company	O-139	Power Control Unit Instruc-
304-1A & 1B truck crane	144 Ex	New Holstein	Wis.		tion Book, Models R, T, FTD7,
304-2A cruiser crane	SD 146	SERVICE MANU	141.8		and N Series Units
605-1B crawler crane	SD 221	Engine Mod		No. O-143	Power Control Unit Instruc-
1005-1A crawler crane	SD 217	LMH-LM			tion Book, Model B Series
34E-1A Twinbatch	0.00	RSH	L-169		Units
	SD 134	RSV-TLV		0-146	Model A-6 Tournapull Instruc-
paver	SD 134 SD 126		L-282	0-170	tion Book, Operation, Mainte-
W60 Dumptor		V-1			nance and Repair
10-1A Mud Jack	103 MR	TLH	L-239	0.104	
50-2A Mud Jack	SD 145	PAH	L-243	O-186	D Tournapull Operation,
51-1A railroad Mud Jack	SD 204	P-25	L-286		Maintenance and Repair
				O-192	Power Control Unit Repair
Kysor Heater Company		Le Roi Con	npany		Manual, Model T Series
		1706 S. 68th	St., Milwaukee, Wis.	O-193	Power Control Unit Repair
Cadillac, Mich.		(See advertise	ments, pages 48, 49)		Manual, Model R Series
Installation and Maintenance	of Automatic			O-194	Power Control Unit Repair
Shutters: Service Bulletin N	0. 511		Compressors: Complete mai		Manual, Model FTD7 Series
Air Shutterstat and Repair: 9	Service Bulletin	nance instru	ictions and illustrated parts	list O-195	Power Control Unit Repair
No. 507B		for all mo	dels. Specify model and so	erial	Manual, Model FD8 Series
Vacuum Shutterstat Mainten	ance and Re-	number.		0-196	Model Super C Tournapull
pair: Service Bulletin No. 51		Industrial 1	Engines: Complete maintena	ance	Operator's Manual
Alarmstat C4740: Service Bu		instructions	and illustrated parts list. Spe	cify O-197	Heavy-Duty Rooter Operator's
			serial number.	· O-197	Manual
Automatic Shutter Air Conti	of Installation:		laintenance manual and it	Hus- O-200	
Bulletin No. 103		trated parts list.		0-200	Sheepsfoot Roller Operator's
Automatic Shutter Vacuum (ontrol Installa-		ractor-compressor): Instruc	tion and n	Manual
tion: Bulletin No. 101			illustrated parts list for h	C. Tul-Mer	Scraper Operator's Manual
Automatic Shutter Hydrauli		unit. Specify Tractair and power unit serial		5.7 m 57 m	Model Super C Tournapull
stallation: Bulletin No. 104		number and description; also serial number		1	Repair Manual
		of attachments.		D-203	Model B Cable Layer Instruc-
				,	tion Book
L			ractor: Instruction manual		Model W-210 Tournatrailer
La Crosse Trailer Corporation			earts list. Specify serial nun	aber	Operator's Manual
		of engine a	nd tractor.	O-205	Model D-6 Tournapull w/
P. O. Box A. La Crosse, Wis.					Scraper Operator's Manual
MAINTENANCE, LUBRICATION AN	D PARTS BOOKS		urneau. Inc.	0-206	Model C-2 Tournadozer Oper-
LaCrosse Heavy-Duty Traile	rs: Serial No.	Peoria, III,			ator's Manual
4950 and up.		(See advertise	ments, pages 36, 37)	0-207	Model C-2 Tournadozer Re-
		OPERATION,	Maintenance and Rei	PAIR	pair Manual
		MANUALS	MAINTENANCE AND RE	O-209	Model B Tournadozer Oper-
LaPlant-Choate Mfg. Co.,	Inc.		11	0.200	ator's Manual
Cedar Rapids, Iowa			older models)	In. O-211	Model C-11 Tournapull w/
(See advertisement, page 179)		O-122	Carryall and Drag Scraper	In- Orall	Scraper Operator's Manual
			struction Book	0.317	
INSTRUCTION BOOKS		O-128	Model C Tournapull Inst		Model B-33 Tournapull w/
TS300 Motor Scraper (\$5.00			tion Book, Operation, Mai		Scraper Operator's Manual
TS200 Motor Scraper (\$5.00			nance and Repair	O-215	Taking the Mystery out of
Hydraulic Operation and	Maintenance	O-129	Hydraulic Brakes for Carr		Electric Control
Manual			Scrapers and Tournatrai	lers, O-217	Model D Roadster Tournapull
Parts Catalogs			Instructions for Adjustm	ents	w/Scraper Operator's Manual,
TS300 Motor Scraper (\$5.00	Charge*)		and Maintenance		Cummins Engine
TS200 Motor Scraper (\$5.00	Charge*)	O-133	Tournacar Welder Instruc	tion O-217-Rev-GM	Model D Roadster Tournapull
TR200 Motor Wagon (\$5.00	Charge*)		Book, Operation, Maintena	ince	w/Scraper Operator's Manu-
TW300 Motor Wagon (\$5.00			and Repair		al, G.M. Engine
Tractor-Drawn Scrapers (s)		O-134	Sheepsfoot Roller Instruc	tion O-218	Model D Roadster Tournapull
C22 and C24; C42 and C44			Book, Operation, Maintena		Maintenance and Repair
C114: C314			and Repair		Manual, Cummins Engine
Sidedozers (specify model):	R21, R23, 4R	0-136	LeTourneau Dozer Inst	ruc- O-218-Rev	Model D Roadster Tournapull
4RX, R61, R63, R71, R75, R7		1.20	tion Book, Operation, Mai		Maintenance and Repair
R8, R82R, R85	oz i dini Rosiki,		nance and Repair		Manual, G.M. Engine
Bulldozers (specify model): 1	R63 R71 D72	O-137	B8 Tournapull Instruc	tion O-219	Model C Roadster Tournapull
		(3-137			w/E-16 Scraper Operator's
4B, 4BX, B61, B71, B75, B7	OK. Do. B52K.		Book, Operation, Maintena	ince	Manual Scraper Operator's
B85	,	0.130	and Repair	0.220	
Landelearing Rippers, Tan	spers (specify	O-138	LeTourneau Crane Instruc		Model C Roadster Tournapull
model)			Rook Operation Maintena	IDCC.	Maintenance and Repair

- Send Serial Number -

Book, Operation, Maintenance Maintenance and Repair and Repair Manual, Cummins Engine

are rounded	u Continued	PC-331	Snowplow for C Tournadozer
O-220-Rev	Model C Roadster Tournapull	PC-332-Rev 1	Model C Roadster Tournapull
	Maintenance and Repair	PC-333	Model C11 Tournapull
	Manual, Cummins, Buda,	PC-334	Model E16 Scraper
	G.M. Engine	PC-336-Rev	Model E35 Scraper
O-221	Model B Roadster Tournapull	PC-338	Model E35 Tournahopper
0-221	w/E-25 Operator's Manual	PC-341	Model E16 Tournarocker
O-224		PC-343	Model A Roadster Tournapull
O-229	Model C-11 Tournapull w/E-	PC-344	Model E50 Tournarocker
	16 Tournarocker Operator's	PC-342-Rev 2	Model Super C Tournadozer
	Manual	PC-352-Rev	Model E9 Scraper
O-226	Model C Roadster Tournapull	PC-355-Rev	Model E9 Tournarocker
	w/E-16 Tournarocker Opera-	PC-354	Models 108 and 144 Tourna-
	tor's Manual	10-351	packer
O-228	Model B-33 Tournapull w/E-	PC-353	Model EC7 Crane
	40 Tournarocker Operator's		
	Manual	PC-356	Model EC15 Crane
O-230	Model B Roadster Tournapull	PC-365	Model Bulldozer & Snowplow
	w/E-40 Tournarocker Opera-		for D Roadster
	tor's Manual	PC-366	Model HN Power Unit
0-232	Model B Roadster Tournapull	PC-367	Model E-18 Scraper
	w/E-35 Tournahopper Opera-	PC-369	Model C Tournamatic Tourna-
	tor's Manual	PC-370	Model E-18 Tournarocker
O-234	Model Super C, Tournadozer	PC-371	Model E-18 Tournahopper
	Operator's Manual, Air Con-		
	trol	PC-372	Model A Tournamatic Tourna-
O-235-Rev	Model Super C Tournadozer		pull
	Maintenance and Repair	PC-373	Model LPO Scraper
	Manual	PC-374	Model C Tournatractor
0-244	FD8 PCU Operation, Mainte-	PC-376	Model 120 Tournapacker
0-211	nance and Repair Manual	PC-377	EC-30 Tournacrane
	(Current units)	PC-381	LSO Carryall Scraper
0.246 B			
O-246-Rev	Model Super C Tournadozer	LUBRICATION C	CHARTS
	Operator's Manual (Electric	TD-206	Super C Tournadozer w/GM
	Control)	113-200	-Torque Converter
0-247	A-4 Tiltdozer Operation,	TD-214	Super C Tournadozer w/Buda
	Maintenance and Repair Man-	110-214	-No Torque Converter
	ual (Current units)	11 0 0 0 C	
O-248	Model HN Power Control Unit	TP-276	C Tournamatic Tournapull
	Operation, Maintenance, and		w/E18 Scraper w/GM
	Repair Manual (Current	TP-304	C Roadster Tournapull w/E18
	units)		Scraper w/GM
O-250	Model C Tournamatic Tourna-	TP-305	C Roadster Tournapull w/E18
	pull w/E-18 Scraper Opera-		Scraper w/Cummins
	tor's Manual	TP-306	C Roadster Tournapull w/E18
0-251	Model C Tournamatic Tourna-		Scraper w/Buda
	pull Maintenance and Repair	TP-283	A Tournamatic Tournapull
	Manual		w/E35 w/GM
O-254		TP-322	D Roadster Tournapull w/E9
U-239	Model A Tournamatic Tourna-	11 300	Scraper w/GM
0.071	pull Operator's Manual		Scraper W/ Giri
O-256	Model C Roadster Tournapull		
	w/E-18 Scraper Operator's	Finanta Ele	odela Campana
	Manual		ectric Company
O-257	Model C Roadster Tournapull	22801 St. Clai	ir Ave., Cleveland 17, Ohio
	w/E-18 Tournarocker Opera-	ODERATING AN	D PARTS MANUALS
	tor's Manual		or all welders from 1940 on.
O-259	Tournapower Engine Operat-		number and name plate data.
	ing Instructions		
			es of Electrodes: Giving appli-
PARTS CATALO			sical properties and procedures.
(Current mod	els only; catalogs available for	Mild Steel	Bulletin 462
older models)		Stainless Ste	el " 463
PC-316	Model C Tournadozer	Non-Ferrous	Metals " 464
PC-320	Model X Sheepsfoot Roller	Cast Iron	" 465
	Model D Roadster	Hardsurfacit	ng " 466
			8

Link-Belt Speeder Corporation

Cedar Rapids, Iowa

INSTRUCTION AND PARTS MANUALS

Furnished, without charge, on request when serial number of machine is furnished. Parts Manuals:

E 157 2.3 272 1573 48400 7 .	
Machine Model	Book Form Number
LS-51	9149TWRH51
LS-52	9149TWRH52
LS-85	9148TW*
LS-90	9148TW*
K-300	5-19-300W
K-500	500-750TW
Maintenance and	Instruction Manuals:

 Maintenance and Instruction Manuali:

 Machine Model
 Book Form Number

 LS-51
 9150TW

 K-300
 2254

 K-500
 K500-3-51

 Lubrication charts available for all models,

Others forms available: Seventeen commandments for safe operation:

Form No. 9 Speed-O-Matic Oil Recommendations: Form No. 10-15-49TW

*Parts and instructions combined in one book.

Lipe-Rollway Corporation

806 Emerson Ave., Syracuse 1, N. Y.

Clutches, Heavy-Duty:

Type ML—Multilever shim adjustable, service manual type ML. Wall chart for type ML

Type TC—Constant capacity toggle, service manual type TC

M

Maginniss Power Tool Co.

154 Distl Ave., Mansfield, Ohio INSTRUCTION AND PART SHEETS

HCV-3	Hi-lectric Concrete Vibrator
HCV-6	Hi-lectric Concrete Vibrator
HGG-1 & 2	Hi-lectric Generators
HGG-3 & 4	Hi-lectric Generators
HGG-3B	Hi-lectric Generators
HGG-5 & 6	Hi-lectric Generators
Give serial r	number to insure proper edition

Maine Steel, Inc.

169 Front St., S. Portland 7, Me.

Operator's Manuals: Sargent Overhead Shovels—Model B and D
Oliver Tractors; Strait-Line Loader—Oliver
Model "77" Industrial Wheel Tractor

Malsbary Manufacturing Co.

845 92nd Ave., Oakland 3, Calif.

(See advertisement, page 188)

INSTRUCTION MANUALS (With Parts Lists)

Model 110 oil-fired Instruction Manual

-Send Model Number -

Model 110 gas-fired Instruction Manual Model 105, 106, and 200 Series Instruction Manual (Including Model 220) Model 250 gas-fired Instruction Manual Model 250 oil-fired Instruction Manual Model 300/500 series gas-fired Instruction Manual (Model 327-GES, 527-GES, etc.) Model 300/500 series oil-fired Instruction Manual (Model 322, Model 522, Model 352, Model 552, etc.) Model 51 Fireless Cleaner Instruction

Manitowoc Engineering Works

16th Street, Manitowoc, Wis. (See advertisement, page 66)

Manual

INSTRUCTION BOOKS Models 1600 and 2000 Crawler Crane Models 3000, 3500 and 3900 Crawler Crane

LUBRICATION CHARTS Models 1600, and 2000 Crawler Crane Models 3000, 3500 and 3900 Crawler Crane Model 4500 Crawler Crane

Marion Metal Products Co.

Marion, Ohio

(See advertisement, page 59)

Bulletin on operation, servicing and maintenance for Marion hydraulic hoists.

Marion Power Shovel Company

Marion, Ohio

Operation and maintenance instruction manuals and lubrication charts available for all machines in current production, including the Marion's 33-M, 43-M, 362, 372, 93-M, 111-M, 4161 and 151-M. Complete parts lists are available for most machines built in last 25 years.

Marlow Pumps

Box 566, Ridgewood, N. J.

(See advertisement, page 190)

Operating and maintenance instructions and parts lists on all types. Send model and serial numbers.

Marmon-Herrington Company, Inc.

1511 W. Washington St., Indianapolis 7, Ind.

Marmon-Herrington All-Wheel Drive Ford Conversions:

Model Publication No.* LD7-4, 6LD7-4, R3-4, 6R3-4 LD7-R3 R32-4 6R32-4 R32-4 R4-4, 6R4-4 **R4** R5-4, 6R5-4, R6-4, 6R6-4, R5-6, 6R5-6, R6-6, 6R6-6,

Publication No.* Model R5COE-4, 6R5COE-4, R6COE-4, 6R6COE-4, R5COE-6, 6R5 COE-6, R6COE-6, 6R6COE-6 R5-R6

V5-4, V6-4, B6V5-4, B6V6-4, V5-6, V6-6, B6V5-6, B6V6-6, V5COE-4, V6COE-4, B6V5-COE-4, B6V6COE-4, V5COE-6, V6COE-6, B6V5COE-6, V Series B6V6COE-6

Q5-4, Q5L-4, Q6-4, Q6L-4, Q-7-4, Q5-6, Q5L-6, Q6-6, Q6L-6, Q7-6

*Each book consists of operator manual, maintenance manual, and parts list. Marmon-Herrington All-Wheel-Drive Heavy-Duty Trucks:

Publication No. Mondel MH610-MH610A MH610 MH615-MH615A MH615 MH620 MH620-MH620A-MH621 MH625-MH625A MH625 MH630 MH630

Separate maintenance manual or parts list, as required by owner.

Marquette Manufacturing Co., Inc.

307 E. Hennepin Ave., Minneapolis 14, Minn. INSTRUCTION MATERIAL

Marquette Battery Chargers:

Schematic Wiring Diagram-Parts List Model 180 Marquette Battery Charger Schematic Wiring Diagram-Parts List Models 201 & 201W Marquette Battery Chargers

Schematic Wiring Diagram-Parts List Model 202 Marquette Battery Charger Schematic Wiring Diagram-Parts List Model 203 Marquette Battery Charger Schematic Wiring Diagram-Parts List Model 205 Marquette Battery Charger Service Manual for Marquette Hi-Rate Battery Chargers, Models 170-171, 100 & 80 Amperes

Instructions for Operating Marquette Wall Chargers, Models 102, 103 & 107 Instructions for Operating Marquette Hi-Rate Charger, Model 170

Instructions for Operating Marquette Hi-Rate Charger, Model 180

Instructions for Operating Marquette 6-12 Hi-Rate Charger, Model 188

Instructions for Operating Marquette Hi-Rate Charger, Model 202 Instructions for Operating Marquette Porto-

Fast Charger, Model 185 Instructions for Operating Marquette Porto-

Fast Chargers, Models 201 & 201W Instructions for Operating Marquette Porto-Fast Charger, Model 203

Instructions for Operating Marquette Porto-Fast Charger, Model 205, 6-12 Volt

Marquette Welders:

Instructions for Operating Marquette Porto-Spot Welder, Model 230

Instructions for Operating Marquette AC Farm Welders, Models 60 & 60C

Instructions for Operating Marquette AC Arc Welders, Models 70-71-71C-72-72C Instructions for Operating Marquette AC Arc Welders, Models 100B-200B-300B, 300BT-100BB-200BB-350BB-350BBT Instructions for Operating Marquette AC

Arc Welders, Models 160-161-162-162T Instructions for Operating Marquette AC Arc Welders, Models 261-261C-262-262C Installation and Operating Instructions for Marquette Industrial AC Arc Welders, 200-300-400-Ampere Rating.

Marquette Torches:

Instructions for Operating Marquette Arc Torches, WA-2001, WA-2002, WA-2003 Instructions for Operating Marquette DC Arc Torches, WA-2004 Instructions for Operating Marquette 141N-

Power Tow Crane

Mar-Rail Conveyor Co.

560 York Ave., Pawtucket, R. I. Parts and maintenance manual for all models of Brik-Toter. State serial number.

Marvel-Schebler Products Division

(Borg-Warner Corp.) Decatur, Ill.

Instruction bulletins on repair, maintenance and servicing adjustments on M-S carburetors: MS-093; MS-106; MS-107; MS-114

Maxon Construction Company, Inc. Manufacturing Division, P. O. Box 240, Tell City, Ind.

(See advertisement, page 135)

Mounting-Operation-Maintenance Book on Dumpcrete non-agitating concrete hauler

McKiernan-Terry Corporation

15 Park Row, New York 7, N. Y. (See advertisement, page 217)

Bulletins 58 and 58-A: Operating instructions on double-acting pile hammers and extractors.

Bulletin 59: Operating instructions on single-acting pile hammers.

Meili-Blumberg Corporation

New Holstein, Wis.

Instruction manuals on gasoline and diesel motor graders, traffic line markers, tractorpowered sweepers, trailers.

Mercury Clutch Division (Automatic Steel Products, Inc.)

1201 Camden Ave., S. W., Canton 6, Ohio Instruction sheets on the installation, operation and maintenance of Mercury clutches.

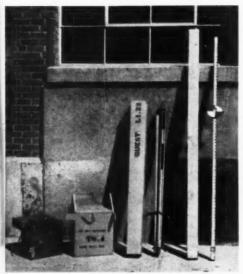
- Send Serial Number -



Contractor Builds ...



... Padded Boxes for



... Hauling Transits and Levels

C. M. GUEST & SONS, veteran building contractor of Anderson, S. C., was experiencing considerable damage to transits and levels in hauling them from job to job in trucks, even though they were carried around in the manufacturer's original cases. Guests' list of surveying instruments includes 16 levels, 15 transits and 29 level rods.

Annoyed not only at the constant expense of repairing damaged instruments, but also at the inconvenience of having them arrive on the job in unusable condition. Walter C. Guest, president of the firm, asked mechanic Herbert Speares to design some kind of protective shipping case. He turned out three types, as shown in the accompanying illustrations, for instruments, tripods and level rods.

Transit and level boxes are large enough to accommodate the original cases. They are lined inside at top, bottom and sides, with foam rubber pads inserted in short lengths of canvas hose and nailed in place. Box ends project above the top as triangles to keep the containers right side up. Offset handles project in four directions to discourage turning the boxes on their sides in transit.

Tripod and rod cases are not padded, but are built to a snug fit around their contents. These cases offer full protection even when hauled with a heavy truckload of tools and supplies.

All cases are built of 1/2-in. plywood.

Gasoline-Soaked Clothing is Dangerous

When we read about individuals who have been burned seriously (sometimes fatally) when gasoline spilled on their clothing later was ignited, we are inclined to lump the incidents with those accidents occurring around refineries and pipeline operations.

But it can happen to mainte-

nance men on construction equipment just as easily. There is the example of a tank truck driver who repaired a small gasoline dispensing pump. In the process, some gasoline spilled on the leg of his overalls. Upon completion of the repair job, he stepped into his truck cab and pushed the starter

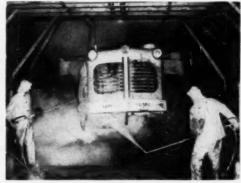
button to start the engine.

A defective ignition circuit caused a spark which ignited the vapors coming off the overalls and set them on fire. The driver received second-degree burns on his ankle and knee. Gasoline- and solvent-soaked rags and materials should be given careful disposal.

Construction Maintenance in Pictures ...



ALL-SEASON SERVICE TRUCK—White Oak Excavators, Inc., uses this rig on a New York State Thruway contract. Lincoln lubrication equipment is mounted on a war surplus Chevrolet 4x4. An International U2 engine drives a Schramm 50-cfm compressor, and a Stewart-Warner Southwind heater warms the lubricants under the truck's tarpaulin cover during cold weather.



CLEANING A MUDDER—Contractors King and Brenaman last spring did earthmoving in Ontario where the equipment got quite muddy—and the mud would freeze overnight, causing cable breakage next day. Solution was nightly steam-cleaning of all 47 units. Here LaPlant-Choate scraper is demudded by steam lines from two Malsbary heavy-duty cleaners.



SECOND WIND—Maintenance is not evident on the surface of this rather routine picture of a portable compressor powering two heavy air tools. But productive maintenance is indicated by the fact that the 150-bp Model HBI-600 Cummins diesel engine in the

Ingersoll-Rand compressor was installed second-hand in 1949. Prior to that—from 1941 to 1949—the engine powered a motor scraper. It still is giving dependable service today by supplying air at approximately 210 cfm.



ROVING SERVICE STATION—The USAF Air Materiel Command eliminates long-distance travel of slow-moving equipment for service at the Cheli Specialized Depot by the use of a special trailer. Unit is equipped to perform all regular maintenance

duties. Note forklift on ramp over grease pit, ready for servicing. Compressor is gas-engine driven; tool chests with steel tops for work benches contain stock of common parts. Big equipment is parked alongside trailer for servicing.

S-132

R-1044

Mill and Mine Supply Company

(See Titan Chain Saws)

Minneapolis-Moline Company

Box 1050, Minneapolis I, Minn.

Industrial Wheelers:

Model RTI - Operating and Maintenance Manual S.137

R-1049 Remair Parts Catalog Model UTI and UTIL-Operat-

ing and Maintenance Manual S-139 Repair Parts Catalog R-1058

Wall Chart

Industrial Mower (Side-Mounted)

-Operating and Maintenance Manual

Minneapolis-Moline Power Units:

Models 165-4A and 206A-4A-

Repair Parts Catalog

Operating and Maintenance Manual S-122A Repair Parts Catalog R-1038

Models 283-4A (KU) and 403-4A (LU)-Operating and

Maintenance Manual 5-114 Repair Parts Catalog R-1050

Wall Chart

Models 425-6A (CU) and 605-6A (HU)-Operating and Maintenance Manual S-101

Repair Parts Catalog R-1077 Model 1210-12A-Operating and

Maintenance Manual S-143 Repair Parts Catalog R-1057

Moline Iron Works

130 Second St., Moline, Ill.

Illustrations of use of Concrete Test Cylinder Molds: Pulletin No. 649

Herman Nelson Div. (American Air Fil-

ter Co., Inc.) Moline, Ill.

Operating Portable Heaters Feonomy Model-GT3062-GT3063 Form 3544 Deluve I Model-CT3070-GT3071 Form 3529 Standard Model-GT3052CA

Nelson Stud Welding (Div. of Gregory Industries, Inc.)

Toledo Ave. & E. 28th St., Lorain, Ohio

Nelson Electric Arc Stud Welder: Operation and maintenance manual for Model H-DC. Also booklet containing helpful suggestions for operators.

New England Carbide Tool Co., Inc.

60 Brookline St., Cambridge 39, Mass.

Instructions on the use and care of Cyclo-Twist, Cyclo-Core, Thunderbolt, Thunder-Twist and Thunder-Core masonry drill bits.

Northfield Iron Company

P. O. Box 30, Northfield, Minn.

Instruction Sheet No. 48: Machines-"Husky" No. 11 Pull-Type Grader "Husky" No. 22 "Husky" No. 33

Parts Lists No. 11-1-50

O.K. Clutch & Machinery Co.

Columbia, Pa.

Booklet: Care and operation of O.K. portable air compressors, with parts list.

Oliver Corporation

Industrial Division, 19300 Euclid Ave., Cleveland 17, Ohio

OPERATOR'S INSTRUCTION AND MAINTENANCE MANDALE

Crawler Tractor Models: OC-3, A, B, D and FDE (also, manuals can be had for all "Cletrac" models including HG, E, etc.) Industrial Wheel Tractor Models: 66, 77 and 88; also older models such as 60, 70, 80 and 900

Power Units: Models 166, 177 and 188 gas

D. W. Onan & Sons, Inc.

2515 University Ave. S. E., Minneapolis 14, Minn

(See advertisement, page 222)

Flectric Generating Plants: Portable and stationary standby units, 400-w to 55,000-w, ac and de units. Gasoline and diesel. Instruction manuals, parts lists and wiring diagrams available for all models. Some manuals and parts lists available in Spanish Linemage

Technical bulletins and service bulletins available for many technical and service problems. Write factory stating problem.

Special Purpose Generating Plants:

Portable Units for Power Tools-ac and de-Flood Light Portable Unit

Airplane Energizer Unit

Individual Instruction Manuals and Parts Lists for each

Industrial Power Envines: 2.5 hp-5 hp and 10 hp

Gear Reduction

Clutch

Pulley

Instruction Manuals and Parts Lists available

Separate Generators

Standard Generators-ac or dc-1,500 to 15.000 w

Tractor Driven-ac-3,000 to 10,000 w Motor Driven - ac and dc - 1,500 to 55.000 w

Instruction Manuals and Parts Lists available Cantenle

Line Transfer

Automatic

Instruction Manuals and Parts Lists

Osgood Company

Marion, Ohio

Type 20-Care and Operation

No. 4907 Manual Lubrication Manual No. 4923

Type 72-Care and Operation

Manual No. 4865 Lubrication Manual No. 5019

Type 82-Care and Operation

Manual No. 4863

Lubrication Manual ... No. 5011 Type 100-Care and Operation

No. 4836 Manual

Lubrication Manual .. No. 4918

Ottawa Steel Products, Inc.

Ottawa, Kan.

OPERATING AND PARTS MANUALS

Hydra-Hammer (self-propelled pavement breaker and backfill tamper). State serial number of machine.

Hydraulic Front-End Loader (tractor attachment). State serial number of loader, and make and model of tractor.

Hydraulic Heavy-Duty Backhoe (tractor attachment). State serial number of backhoe. and make and model of tractor.

Owen Bucket Co.

6020 Breakwater Ave., Cleveland, Ohio (See advertisement, page 107)

Specifications, parts list and instructions for all types of Owen Buckets and Grapples.

Parsons Company (Koehring Subsidiary) Newton, Iowa

Operating, maintenance, lubrication and parts manuals: Trenchliner Models 221-2A, 250-2A, 310-1A, 88-1A, 202-1A and 215-1A.

Patent Scaffolding Co., Inc.

38-21 12th St., Long Island City 1, N. Y. (See advertisement, page 148)

Safety Scaffolding Machines: Large wall charts showing installation diagrams and operating procedures.

Swinging Scaffolds: Bulletin J-6 and 4-p parts list on Junior type scaffolds; Bulletin

Form 3197

J-9 (M) and 4-p parts list on Midget-type Pitman Manufacturing Co. scaffolds.

TubeLox Scaffolding: Bulletin 10-PTS shows how to erect and uses for scaffolding. Hoist Towers: Bulletin HT-2 describes equipment and uses; HT-3 describes erec-

Sectional Scaffolding: Bulletin PSS-24 shows basic erection procedure; PSS-28 on shoring; parts list available.

Pioneer Engineering Works, Inc.

tion procedure in detail.

1515 Central Ave., Minneapolis 13, Minn. INSTRUCTION BUILDING

Number	Title
IB-20	Assembling and Operating Pioneer Buzzer Screen
IB-28	Erection of the Pioneer Gravity Belt Tightener
IB-34	Operating the Pioneer Jaw Crusher
IB-37	Hydraulic Cradle Truck Instruction Book
IB-38	Pioneer 8-in. Band Clutch
IB-39	Instructions for Assembling Pioneer 305W Plant
IB-40	Assembly of the Pioneer 21-Yard Bin
1B-41	Operating Pioneer Mechanical Recipro- cating Feeder
IB-42	Operating Pioneer 46VE Duplex Plant
IB-44	Fitting and Pulling Gib Head Tapered Keys
IB-45	Assembling and Operating Pioneer Buzzer Screen
IB-46	Operating Pioneer Traveling Grizzly Feeder
IB-48	Operating Pioneer Two-Bearing Vibrating Screens
IB-49	Operating Pioneer Apron Feeders
IB-50	Installation and Service of Bearings and Oil Seals on Pioneer Continuflo Equipment
18-51	Operating Pioneer Four-Bearing Vi- brating Screens
IB-52	Producing "Stone Chips" with the Pioneer 17V Duplex Plant
IB-58	Operating the Pioneer Roll Crusher
IB-60	Operating Pioneer Channel Frame Conveyors mounted on plants
IB-63	Pioneer Conveyor Instructions
1B-65	Instructions for Operating Recipro- cating Plate Rock Feeder
IB-66	Instructions for Lagging a Pulley with Safety Walk Material and Adhesive
IB-68	Operating Pioneer 39V or 40V Du- plex Crushing and Screening Plant
IB-43	Operator's Manual for Pioneer \$101 Asphalt Plant—Limited Distribution
1B-53	Operator's Manual for Pioneer \$51 Asphalt Plant—Limited Distribution

300 W. 79th Terrace, Kansas City, Mo.

Pitman Hydra-Lift, Model 101-1 and Model B: Installation, operating and maintenance manual, including parts list. Manual and parts ast especially for Model B, but all information, except as noted, applicable to Model 101-0 also,

Porter-Cable Machine Company

Syracuse 8, N. Y.

INSTRUCTION BOOKS With lubricating information, as needed

Machine	Form Nos
A-3 Speedmatic Sander	746
500 Speedmatic Sander	778
All Speedmatic Saws	S-18
A-2 Guild Sander	787
A-4 Guild Saw	777
A-6 Guild Saw	S-16
A-8 Guild Saw	S-17
5006 Guild Hinge Butt Templet	S-12
100 Guild Router	739
D-6 Guild Combo-Tool	711
106 Guild Sander	S-14
103 Guild Hedgshear	766
1000 Sterling Speedmatic Sander	743
1512 Speed-Bloc Sander	780
B-3 Abrasive-Belt Machine	644
B-3W Abrasive-Belt Machine	S-13
B-6 Abrasive-Belt Machine	S-24
505, 510, ABS, CBS Backstand Idler	s S-22
BBS/2YBBS Abrasive-Belt Machines	S-25
CN2/N2 Abrasive-Belt Machine	658B
AG-4 Abrasive-Belt Machine	S-26
WG-4 Abrasive-Belt Machine	S-27
BG-8 Abrasive-Belt Machine	805
C-6 Abrasive-Belt Machine	S-28
L-4 Abrasive-Belt Machine	675
506 Abrasive-Belt Machine	S-19
503 Speedmatic Sander	S-20
UB/UC Speedmatic Routers	S-15
PARTS LISTS	
Machine	Form Nos.
Speedmatic Portable Tools	810
Guild Tools	811
Abrasive-Belt Machines	816

Posey Iron Works, Inc.

Iroquois Division, Lancaster, Pa.

Machine Pa	erts Books and Lists
Steam Rollers \$1 to 8214	Bulletin 1A
Portable Asphalt Plants #10:	1
to 263	Bulletin 10A
Mixers \$677-1086	Spare Parts List
\$10-21	Bulletin 402
#1086-10119 V	Bunetin 402
Asphalt Pumps 3-in	
\$ 3016-30125	Dwg. 6452B
Asphalt Pumps 4-in	
2 4009-4018	Dwg. 6419

Powder Power Tool Corporation

0719 S.W. Woods St., Portland 1, Ore.

(See advertisement, page 155)

	*1 12 71 11 111
Manual Description	Number
Drive-It Model 400	
Catalog Sheet (and Accessories)	M 99
Instruction Manual	M 95
Spare Parts List	M 94
Drive-It Model 300	
Catalog Sheet (and Accessories)	198
Instruction Manual	197
Spare Parts List	196
Drive-It 300 and 400	
Technical Manual	106
Drive-Pin Chart	102

Power Products Corporation

Grafton, Wis.

ODERATION MANUALS AND PARTS LISTS No. 068, single-cylinder engines; No. 067, twin-cylinder engines; No. 019, general.

The Prehy Co., Inc. (see C. L. Ballard)

Prime-Mover Company

Muscatine, Iowa

Service manual for Prime-Mover Model 15

Quick-Way Truck Shovel Co.

4150 Josephine St., Denver, Colo.

Model L Operations, Maintenance and Parts Manual No. 51-7

Model E Operations, Maintenance and Parts Manual No. 51-8

Model S Operations, Maintenance and Parts Manual No. 52-2

Model J Operations, Maintenance and Parts Manual No. 52-7

Power Down-Boom Hoist, Worm Driven-(For Models E and L)-Operations, Maintenance and Parts Manual No. PB 51-3A Combination Power Dipper Trip and Auto-

matic Tagline Winder (For all Models)-Operations, Maintenance and Parts Manual

Quincy Compressor Co.

Quincy, Ill.

OPERATING INSTRUCTION MANUALS

(Serial numbers stamped on brass nameplates)

Model X-2 Form X2-136-15M-3/52 Model X-8 Form 136-5M-7-51 Models A-4, 106, 108,

212, 216, 230, 308, 310 and 325 Form X13-15M-10-51 Models 244, 330, 340,

and 390 Form X14-5M-10-51

Quincy Compressor . . . Continued

OPERATING INSTRUCTION MANCALS (Serial numbers stamped on brass nameplates)

Water-cooled Models WW33, WW44,

WW64 and WW80 Form 100A

LUBRICATION CHARTS Model X-2, X-8, A-4, 106, 108, 212, 216, 230, 308, 310 and

Form 125A-20M-11-50 Models 244, 330, 340. WW33, WW44, Form X8 Rev. 5M-11-

WW64 and WW80 50 Model 390 Form 390

Radio Corporation of America

RCA Victor Division, Camden 9, N. J. RCA booklet: 2-Way Radio for Industry

Ramset Fasteners, Inc.

12117 Berea Rd., Cleveland 11, Ohio Ramset Powder-actuated tool manuals: Model 122-Model 238-Instruction Manuals Specification Booklet on Ramset Tru-Set Lasteners

Ransome (See Worthington Corp.)

Remington Arms Company, Inc.

Industrial Sales Division, Bridgeport 2, Conn. See advertisement, page 195)

Operating Instructions, Model 450 Remington Stud Driver: Data Sheet 2-450, use of studs for Model 450 Remington Stud Driver in construction materials.

Rice Pump & Machine Company

North Milwaukee St., Grafton, Wis.

Master parts and service manual applicable to each pump. Send model and serial num-

Richmond Screw Anchor Co., Inc.

816-838 Liberty Ave., Brooklyn 8, N. Y. Data catalog with instructions on selecting and installing Form-Tvs and accessories.

Robinson Air-Activated Conveyor Systems

205 E. 42nd St., New York 17, N. Y. Bulletin 313: Operation of Robinson air-activated conveyor systems.

Rogers Brothers Corporation

100 Orchard St., Albion, Pa. Low-bed, heavy-duty trailers: Parts manuals and lubrication charts are compiled for each individual trailer.

Rome Plow Company

Esom Hill Rd., Cedartown, Ga.

Kome Disk Plowing Harrows: Assembly instructions, operating instructions and parts lists for all models. If serial number not available, give number of disk blades, disk spacing, and approximate age of machine.

Rosco Manufacturing Company

3118 Snelling Ave., Minneapolis 6, Minn. Instruction Asphalt Distributors: Books Parts All Models, Front-Mounted Power Pumping Unit 1941 to February 1946 43-011 RPL-7 1946 and Current 43-011 RPL-7-8 Application Charte Type G Full-Circulating

Spraybars-Plain Noz-46-19G 46-241 yles Type G Full-Circulating Spraybars-V-Jet Noz-

zles 46-19GV 46-241 Type F Full-Circulating Spraybars-Plain Noz-

zles 42-19 Type H Conventional, Tubular, Suck-Back Bar 42-1911 43-211

Rear-Mounted Power Pumping Umt, Model 50-18 S-172

Type E Full-Circulating Spraybar--V-let Nozzles 46-19GV S-171 a Model RHU Maintenance 50,21 Distributor

Model RMT Maintenance TMT-4 Unit 40.13

Medel MTA (give motor model) 49.17 on appln. Road Swreper:

Model B7 \$.158 Model MRC (Water S-158 Attach.)

Ross Gear and Tool Company

Lafavette, Ind.

Street Flushers

Direct all requests for service information on Ross cam-and-lever steering gears to manufacturer of truck or machine where med

Salem Tool Company

Salem Ohio (See advertisement, page 229)

Bulletins on operation and parts lists: Trench-Type Utility Drill Horizontal Auger Drills Vertical Auger Drills Mineral Recovery Drills

Sanstorm Manufacturing Company

P. O. Box 1173, H & Santa Clara Sts., Fresno 15. Calif.

(See advertisement, page 164)

Sanstorm Sandblast Machines:

Directions for operating and maintaining, including parts list, for Models AH, AHW. BHW and BH machines.

Directions for operating and maintaining Model CW Sanstorm sandblast machine.

Schen Products Company

P. O. Box 262, Upland, Calif.

INSTRUCTION BOOKS

Hy-Lo Return Gas Oil Salamander Hy-Lo Large Cone Oil Salamander Hy-Lo Hotshot Forced Air Portable Heater

Schield Bantam Company

Waverly, Iowa

(See advertisement, page 111)

Manual of Instructions and Parts, Model M-49, on 3/8-yd truck-mounted power cranes and shovels.

Schramm, Inc.

West Chester, Pa.

(See advertisement, page 212)

Portable and stationary compressor instructions and parts lists for all models. Give size and type, if possible.

Rock drills, wagon drills. Pneumafeed, Pneumajack, paving breakers, Pneumabreakers. Parts lists available. Give type of tool.

Air tools-clay diggers, backfill tampers, sump pumps, utility hoist, riveters, vibrators, chain saws, circular saws. Instruction books and parts list.

Screen Equipment Co., Inc.

1754 Walden Ave., Buffalo 25, N. Y.

Instruction book on the installation and care of Seco screens.

Service Supply Corporation

20th St. & Erie Ave., Philadelphia 32, Pa.

Maintenance Manuals, Lubricating Charts and Operating Manuals:

S&L Wheel-Type Tractor Crane; LODOVER combined front and rear discharge tractor shovel for crawler tractors.

R. H. Sheppard Co., Inc.

Hanover, Pa.

Sheppard Diesel Wheel-Type Industrial

Tractors: Operating, maintenance and parts

Sheppard Diesel Engines: Operating, maintenance and parts manuals.

Skilsaw. Inc.

5033 Elston Ave., Chicago 30, Ill.

INSTRUCTION AND PARTS LISTS

On SKII tools:

Portable electric and pneumatic saws, portable electric and pneumatic drills, portable electric and pneumatic sanders, portable electric and pneumatic grinders, portable electric drivers and nut runners, SKII. radial saw. SKII. radial support, SKII. electric and pneumatic haminers, and SKII. electric shears.

Gordon Smith & Company, Inc.

Bowling Green, Kv.

Portable and stationary compressors: Instructions and parts lists for all models. Give model and serial number of compressor head.

Snan-on Tools Corporation

Kenosha, Wis.

Instruction Manuals

Electric Drills No. SB-17 G
Torque Specifications No. SB 33 G
Valve Seat Grinder No. SB 21 F
Valve Seat Specifications No. SB 32 G
Hydraulic Body Jack No. SB 30 G
Wheel Aligning No. SB 34 G

Stewart-Warner Corporation

(See Alemite Division)
(See advertisement, page 197)

Stow Manufacturing Co.

31 Shear St., Binghamton, N. Y.

Instruction and Parts Books

Concrete Vibrators, Gasoline and Electric: Bulletin 511 and Form 512.

Vibrating Screeds for Concrete: Bulletin 511 and Form 513.

Sullivan

(See Joy Manufacturing Co.)

T

S. G. Taylor Chain Company

Hammond, Ind.

Bulletins on selection and proper application of chain to construction equipment

Templeton, Kenly & Co., Inc.

1020 S. Central Ave., Chicago 44, Ill. Repair and maintenance Catalog No. 52 on Simplex jacks

Timken Roller Bearing Company

Rock Bit Division, 1835 Dueber Ave., S.W., Canton 6, Ohio

(See advertisement, page 99)

New Rock Bits for Old Through Proper Reconditioning: A 14-p manual covering equipment and proper procedure for reconditioning Timken multi-use rock bits.

Preparation of Hollow Drill Steel for Timken Rock Bits: A loose-leaf manual illustrating the recommended procedure for forming the thread and shoulder on hollow drill steel used for Timken removable rock hits. Information includes cutting, heating and forging, annealing, shanking, etc.

Titan Chain Saws. Inc.

2700 Fourth Ave., South, Seattle 4, Wash. Separate repair and parts manuals (price 50c each) for Titan chain saws Series 40, 60, 100 and 120.

Traylor Engineering & Manufacturing Company

Allentown, Pa.

(See advertisement, page 151)

INSTRUCTION AND PARTS BOOKS
Jaw Crushers (Types H and HB, R, S)
Gyratory Crushers (Types TC and T)
Reduction Crushers (Type TY)
Crushing Rolls (Types A, AA and FourTension Rod)

Triumph Machinery Division

200 Valentine St., Hackettstown, N. J.

OPERATORS' MANUALS

Hydro-Mowers (Anderson) Hydro-Cut Mowers—Oliver 66, 77 and 88

Industrial Wheel Tractors Triumph Tractor Blades for Oliver 77 and 88 Industrial Wheel Tractors

Tulsa Winch

(Div. of Vickers, Inc.) 815-825 E. First St., Tulsa 3, Okla.

Manual SF-252: Tulsa Winches for Trucks and Crawler Tractors (Contains operating, maintenance and assembly data)

Manual MO-951: Operation and Lubrication Instructions for Tulsa Products

Tweco Products Company

P. O. Box 666, Wichita 1, Kan.

Form No. CC-48: "Causes and Cures for Hot-Running Welding Cables and Connections"

Twin City Engines and Tractors (See Minneapolis-Moline)

Twin Disc Clutch Company

Racine, Wis.

(S:e advertisement, page 154)

Clutch and Torque Converter Manuals:

- 143 Maintenance Manual Hydraulic Couplings and Hydraulic Power Take-Offs
- 137-F. General Instructions Care and Operation of Twin Disc Power Take-Off Units
- 146 General Instructions Care and Operation of Twin Disc Model E and EH Clutches
- 500 Maintenance Manual Disconnecting Hydraulic Couplings
- 125-C Installation, Care and Maintenance of Twin Disc Marin: Gears
- 138-B Maintenance Manual Three-Stage

U

Universal Road Machinery Co.

Kingston, N. Y.

(See advertisement, page 55)

Manuals on Reliance products:

Crushers, Portable and Stationary: Foundation and setting plans, operating instructions and parts lists. Give machine number and size of jaw opening.

Bucket Elevators, Chain and Belt Types, Portable and Stationary: Parts lists. Give machine number or number of crusher with which used.

Belt Conveyor: Parts list. Give machine number.

Rotary Screens—Washing and Dry Screening, Roller and Central Shaft Types: Parts lists. Give machine number.

Sand Wash Boxes: Parts list. Give machine number.

Feeders-Belt Type: Parts list. Give machine number.

Street Sweeper: Parts list, Give machine number,

Gayco Air Separators: Models 21, 26, 27 and 28. Parts lists. Individual instruction booklets for each size and model. Give model and machine numbers.

Reliance Gayco Air Separators: Models 34, 38 and 44. Parts lists. Individual instruction booklets for each size and model. Give model and machine numbers.

- Send Serial Number -

V

Velocity-Power Tool Company

7505 Thomas Blvd., Pittsburgh 8, Pa.

Manual of instruction for use of Velocity-Power driver.

Vibro-Plus Products, Inc.

54-11 Queens Blvd., Woodside, L. I., N. Y. (See advertisement, page 221)

Operating and maintenance instructions for the Vibro-Plus vibrators.

Viking Pump Company

Cedar Falls, Iowa

Service manual for Viking rotary pumps; instruction sheet and parts list for heavy-duty pumps.

W

E. H. Wachs Company

1525 N. Dayton St., Chicago 22, Ill.

Operating manual and replacement parts manual for Wachs National pipe saw.

Wagner Iron Works

Super A Tractor

For Allis-Chalmers WD and WC

1905 S. First St., Milwaukee I. Wis.

Instruction Books	
Wagner Loader 1	orn
For Ford Tractor	346
For Ferguson Tractor	346
For Case VA, VAC, & VAI Tractor	35
For John Deere A & B Tractor	362
For John Deere M Tractor	326
For John Deere MC Tractor	337
For International Harvester Cub Tractor	35
For International Harvester C and	
Super C Tractor	359
For International Harvester A and	

Tractor T-361
For International Harvester H & M
Tractor T-362
For Oliver 77 and 88 Tractor T-363
For Massey-Harris 30 and 44 Tractor T-364
Service bulletins for all Wagner Loaders:
No. 1-AD; No. 2-AD; No. 3-AD; No. 4-AD.
Spare Parts and Price Lists for all Wagner

Ware Machine Works, Inc.

Ware, Mass.

OPERATORS' MANUALS

Loaders: SP-2.

All models of Ware Loaders for Oliver wheel and crawler tractors, including HG, OC-3, A and B crawlers, 60, 66, 70, 77 and 88 Industrial Wheel Tractors.

Ware Hydro-Trenchers for Oliver 77 and 88

Warner & Swasey Co.

5701 Carnegie Ave., Cleveland 3, Ohio (See advertisement, page 125)

Gradall Model M-2460: Service Manual and Repair Parts List

Warsop Power Tools, Inc.

P. O. Box 1809, Wilmington 99, Del.

Portable Gasoline Paving Breaker Model S6: Instruction and parts book

Portable Gasoline Rock Drill Model D.P.: Instruction and parts book

Chain Saw Model De Bo: Instruction and parts book

Waukesha Motor Company

Waukesha, Wis.

Diesel Engines and Units:

Model Instruction Manual
6-WAKD Form 1430
6-LRD Form 1523

Other Models Parts books and general instructions on receipt of serial number

Gasoline, Gas, Engines and Units:

140-145 Series Form 1476 180-185-190 Series Form 1500

Other Models-General Sheet on Clear-

ances & Adjustments Form 1267

Waukesha Hesselman Engines and Units: All Models Form 908

Spanish Language Maintenance Manuals:
Diesel Models Form 1592-Sp.
Carburetor Models Form 851-Sp.

Wayne Crane Division

(American Steel Dredge Co., Inc.) 2511 W. Taylor St., Fort Wayne 6, Ind. (See advertisement, page 216)

Operations, maintenance and parts manuals on following Wayne cranes: Model 20 rubber-tured, single-man; Model 40 truck-mounted; Model 66 crawler-mounted; Model 22 rubber-tired, single-man (no longer built); Model 44 truck-mounted (no longer built).

Also care and operations manual on Bushwacker land-clearing machine. Lubrication chart included with each model.

Westinghouse Air Brake Company Industrial Products Division, Wilmerding, Pa.

Pneumatic Fundamentals: Deals with the operation of air controls and associated devices.

OPERATION AND MAINTENANCE INSTRUCTIONS

Sheet Number Unit 9356-27.20 H2F Controlairs (foot-operated) 9356-27.10 H-1 Controlairs (hand-operated) 9356-1 Flexair Valves

Westinghouse Electric Corporation

Welding Division, 4475 Genesce St., Buffalo 5, N. Y.

(See advertisements, pages 28-29)

Flexarc Engineering Data Book (leather bound), \$1 per copy: Covers are-welding procedures and techniques, welding equipment, brazing, and proper selection of electrodes.

Wheeler Insulated Wire Co., Inc.

(Div. of Sperry Corp.)

150 E. Aurora St., Waterbury 20, Conn.

A-5045—Parts list and instructions for installing and operating Wheeler Pair Phone system

A-5063—Supplementary parts list and instructions for installing and operating Wheeler self-powered telephone systems.

White Manufacturing Company

Elkhart, Ind.

(See advertisement, page 128)

Concrete Vibrators and Grinders: Instruction sheet for all models, engine books for Lauson and Wisconsin available, new parts book 24-PB-52 available.

Asphalt Plants, Aggregate Dryers and Pug Mixers: Books for Le Roi and Continental available, new parts book 39-PB-52 available, also Model L-8 instruction booklet.

Asphalt Heating Kettles, Heaters, Torches, Burners: New parts book 27-PB-52 available, also instruction sticker for burner operation.

Front-End Loaders: Parts book 36-PL-4 available, also instruction sheet.

Railway Switch Heaters: Instruction and maintenance booklet available, also new parts book 35-PB-52.

White Motor Company

Cleveland, Ohio

Operators' manual on WC Series of gasoline-powered White trucks.

Whiteman Manufacturing Company 3249 Casitas Ave., Los Angeles 39, Calif.

(See advertisement, page 13)

PARTS LISTS AND INSTRUCTION MANUALS

Whiteman Power Buggy; Whiteman portable screeding machines; Whiteman finishing-floating and disk-floating machines.

-Send Model Number -

Wood Manufacturing Co.

6900 Tujunga Ave., N. Hollywood, Calf.

OPERATORS' INSTRUCTION MANUALS AND SPARE

Model 54 Wood Roadmixer

Model 42 Wood Roadmixer

Model 36 Wood Roadmixer

Model P-624 Wood Preparizer

Wood Windrow Proportioner

Wood 3000 Gallon Tank Trailer

Wooldridge Manufacturing Company

Sunnyvale, Calif. INSTRUCTION MANUALS

RS-3-Ripper

scraper

OS-122-Open bowl, tractor-drawn scraper

TH-0122-Open bowl, self-propelled scraper TC-S142-Larger capacity, self-propelled

Worthington Corporation

(Formerly Worthington Pump & Machinery

Plainfield Works, Plainfield, N. J.

(See advertisement, Back Cover)

INSTRUCTION BOOKS AND PARTS LISTS Serial number must be given in each request.

Blue Brute Portable Air Compressors: Model 33F Utility

Model 85F Utility

Model 30 Ft

Model 60 Ft (Contractor or Railroad Mod-

Model 105 Ft

Model 160 Ft

Model 210 Fr

Model 315 Ft

Model 500 Ft

Model 600 Ft

Blue Brute Portable Concrete Mixers:

31/2S Tilting Mixer (Side Discharge)

31/2S Tilting Mixer (End Discharge)

31/2S Non-Tilting Mixer

6S Mixer

6-cu ft Plaster & Mortar Mixer

11S Mixer

16S Mixer

28S Mixer

Blue Brute Contractors Tools:

W-18 Backfill Tamper

W-14 Clay Digger (Light Weight)

W-114 Trench Digger (Light Weight)

W-15 Clay Digger (Heavy Weight) W-115 Trench Digger (Heavy Weight)

WB-34 Paving Breaker (Light Weight)

WB-50 Paving Breaker (Medium Weight)

WB-81 Paving Breaker (Heavy Weight)

WB-85 Paving Breaker (Heavy Weight Long Stroke)

WS-45 Rock Drill (45-lb class)

WS-55 Rock Drill (55-lb class)

WS-30 Rock Drill (80-lb class)

UMW-30 Wagon Drill (3-in. to 6-, 8- or 10-ft feed)

PMW-40 Wagon Drill (4-in. to 6-, 8- or 10-ft feed)

Blue Brute Contractors Self-Priming Centrifugal Pumps-AGC Ratings:

4M (Base Mounted, Only)

7M (Base Mounted, Steel Wheels, Cushion Tires)

10M (Base Mounted, Steel Wheels, Cushion Tires)

15M (Base Mounted, Steel Wheels, Cushion

20M (Base Mounted, Steel Wheels, Cushion Tires)

30M (Base Mounted, Steel Wheels, Cushion Tires)

40M (Base Mounted, Steel Wheels, Pneumatic Tires)

Blue Brute Big Mixers:

28S Mixer (1 yd) 56S Mixer (2 vd)

126S Mixer (4 yd)

168S Mixer (6 yd)

Blue Brute Pneumatic Concrete Placers:

14-Cu Ft Horizontal Placer

Blue Boute Parers

34E Single Drum

34F Dual Drum

34E Dual Drum (Model WP)

Blue Brute Truck Mixers and Agitators:

2-Cu Yd Hi-Up Mixer (3-cu yd agitator rating) 3-Cu Yd Hi-Up Mixer (41/4-cu yd agitator

rating) 41/2 Hi-Up Mixer (61/4-cu vd agitator rating)

51/2 Cu Yd Hi-Up Mixer (73/8-cu yd agitator

Wright Power Saw and Tool Corp.

292 Longbrook Ave., Stratford, Conn.

Owner's manual and parts catalog on Model No. A-256 Wright saw.



Yaun Manufacturing Co., Inc.

P. O. Box 1508, Baton Rouge, Inc.

INSTRUCTIONS AND PARTS LISTS

Yaun dragline buckets, clamshells, tailgate spreader boxes, manganese steel drag and hoist chains.

Manufacturers' Manuals Available

On the Use and Care of Accessories for Construction Equipment—and Related Services

AC Spark Plug Division

(General Motors Corp.)

Flint, Mich.

How to Service Spark Plugs Form A-1920 How to Service Spark Plug

Cleaners

Form A-1921 How to Service Fuel Pumps Form A-1919

Air Reduction Sales Company

60 E. 42nd St., New York 17, N. Y.

(See advertisement, page 38)

Guide on Airco hard-facing alloys recommending selections and procedures for different uses.

Alloy Rods Company

York, Pa.

(See advertisement, page 220)

INSTRUCTION BOOKS

On Wear-Arc hard-facing electrodes

Bulletin 5651: Wear - Arc types Chromium-Boride, 12, 6, 3, Bulletin 52-3: Wear-Arc Alloy Rods Hard-Facing Comparison Chart (4 pp).

The American Brass Company

Waterbury 20, Conn.

Booklet B-13: Information on repairs by welding with Anaconda rods.

American Chain & Cable Co., Inc.

Bridgeport 2, Conn.

(See advertisement, page 27)

Booklet: How to keep your wire rope working.

American Manganese Steel Division

(American Brake Shoe Co.)

Chicago Heights, Ill.

(See advertisement, page 30, 31)

650-W: General catalog on Amsco hard-facing welding rods and electrodes, with list of applications

- Send Serial Number -

American Manganese . . . Continued

WA-77: Weldments catalog (shapes, dipper teeth repointers)

451-GC: Grinding Wheel Specifications 5C: Selector and Comparison Chart for hard-facing rods and electrodes.

17-In. x 26-In. Amseo Welding Rod Wall Chart: Handy selection guide for shop use. Technical Material by Howard S. Avery. Hot-Hardness of Hard-Facing Allows: Hard-Facing Allows for Steel Mill Use; Composite Tungsten Carbide Weld Deposits; The Metallurgical Background for Welding Austentic Manganese Steel.

American Steel & Wire Division

(United States Steel Co.)

Rockefeller Bldg., Cleveland 13, Ohio

(See advertisement, page 110)

Manuals Relating to Selection, Use and Care of Wire Rope: The Right Rope for the Job; Specification Data—American Tiger Brand Wire Rope; Valuable Facts... About the Use and Care of Wire Rope;

Armstrong Bros. Tool Co.

5200 W. Armstrong Ave., Chicago 30, Ill., Use and service information:

Catalog S-48: Covers tool holders, bits blades and cutters, setting up tools and some pipe tools.

Catalog 2-51: Covers Armstrong pipe tools,

Atlantic Steel Corp.

1775 Broadway, New York 19, N. Y. Manual on specifications and use of steel tools for preumatic equipment.

C

Calumet Division

(Calumet and Hecla Consolidated Copper Co.) Calumet, Mich.

Drill Bits (Liddicoat Detachable Drill Bits). Instructions for use and for drill rod fabrication and reconditioning.

Carlyle Rubber Co., Inc.

64 Park Pl., New York 7, N. Y.

Manual on the installation, care and maintenance of rubber conveyor belting.

Cities Service Oil Company

60 Wall Tower, New York 5, N. Y. (See advertisement, page 115)

Lubrication book: Earthmoving and Construction Machinery Lubrication.

Crucible Steel Company of America

405 Lexington Ave., New York 17, N. Y. (See advertisement, page 176)

Data sheets on selection and use: DS179: Rexweld A, B and C hard-surfacing welding rods DS182: Rezistal "WH" wear - hardening electrodes

DS184: Park A Alloy hollow drill steel DS188: Alva Alloy hollow drill steel

DS219: Rexweld 33W hard-surfacing welding rods

D

Diamond Chain Company, Inc.

402 Kentucky Ave., Indianapolis 7, Ind.

Bulletin 709: Roller Chains and Stock Sprockets

Bulletin 19: Flexible Shaft Couplings

E. I. du Pont de Nemours & Com-

Fabrics Division, 350 Fifth Ave., New York 1, N. Y.

Manual A-6043: Ventube system of auxiliary ventilation.

G

GMC Truck & Coach Division

(General Motors Corp.) 660 South Blvd., East, Pontiac 11, Mich. (See advertisements pages 34, 35)

Operates mobile diesel engine service training schools

B. F. Goodrich Company

Akron, Ohio

(See advertisement, page 1)

Flat Belting: Conveyor and Elevator-Care

and Maintenance Conveyor and Elevator—Splicing and Repairing

Elevator Engineering Handbook

Transmission — Engineering Handbook

Conveyor Engineering Handbook

V-Belt Drives: Care and Maintenance of B. F. Goodrich V-Belt Drives

Goodyear Tire & Rubber Co., Inc.

1144 E. Market St., Akron 16, Ohio

(See advertisement, page 5)

MAINTENANCE MANUALS

Truck Tire Data Book How to Get Extra Service out of Truck Tires (Highway types)

Longer Service from Off-the-Highway Tires

Greene, Tweed & Co.

North Wales, Pa.

Instruction books, with specifications, on Palmetto packings and gaskets and G-T ring packing.

Grev-Rock Division

(Raybestos-Manhattan, Inc.) Manheim, Pa.

Brake Service Manual for Cars and Trucks

Industrial Friction Material Catalog, for Replacement Parts

Automotive Fan Belt and Hose Catalog, for Replacement Parts

Gulf Oil Corporation

719 Gulf Bldg., Pittsburgh 30, Pa. (See advertisement, page 2)

Lubrication and Maintenance Guide for Contractor's and Allied Equipment

H

Haynes Stellite Division

(Union Carbide and Carbon Corp.)

30 E. 42nd St., New York 17, N. Y. Manual on hard-facing with Haynes alloys.

Hyatt Bearings Division

(General Motors Corp.)

Attention: H. M. Carroll, Harrison, N. J. Roller bearing maintenance handbook

1

International Harvester Company

180 N. Michigan Ave., Chicago 1, Ill.

(See advertisements, pages 136, 137)

Operates mobile service training schools on International crawler tractors and industrial power units.

Κ

Keystone Lubricating Company

21st. Clearfield & Lippincott Sts., Philadelphia 32, Pa.

Bulletin BK-19: Planned lubrication Form C 10N: Lubrication application guide

L

A. Leschen & Sons Rope Company

5909 Kennerly Ave., St. Louis 12, Mo.

(See advertisement, page 180)

Manual C-51: Use and care of wire rope.

R. G. LeTourneau, Inc.

Peoria, III.

(See advertisements, pages 36, 37)

Operates mobile service training school on LeTourneau equipment.

M

Macwhyte Company

Kenosha, Wis.

(See advertisement, page 3)

Instructions on wire rope, wire rope slings, Safe-Lock terminals and assemblies.

Marlin-Rockwell Corporation

Jamestown, N. Y.

Portfolio of Shop Bulletins 1 through 27 on ball-bearing practices for the shop man. Request must be on company stationery.

O

D. W. Onan & Sons, Inc.

2515 University Ave., S. E., Minneapolis 14, Minn.

(See advertisement, page 222)

Operates service school periodically; write for information.

Owatonna Tool Co.

Owatonna, Minn.

Service Tool bulletins showing maintenance operations.

Machine	Bulletin
Caterpillar tractors	CT-52
Oliver Cletrac tractors	CL-49
International tractors	HC-52
Allis-Chalmers wheel tractors	AC-49
John Deere tractors	ID-50
Massey-Harris tractors	MH-49
Minneapolis-Moline tractors	MM-50
International trucks	Manual 3A
Diamond T trucks	DT-50
FWD trucks	FWD.49

P

Pioneers Incorporated

2411 Grove St., Oakland 12, Calif. Pamphlet No. 90 on Battery AD-X2: How to cut cost of battery repairs.

PurOlator Products, Inc.

970 New Brunswick Ave., Rahway, N. J. Instructions on installation and operation of PurOlator filters: No. 2052, fleet distributor; industrial.

Q

Quaker Rubber Corporation

(Div. of H. K. Porter Co.) Corner of Tacony & Comly Sts., Philadelphia 24, Pa.

(See advertisement, page 64)

Instruction book for the conservation and maintenance of rubber products.



Raybestos Division

(Raybestos-Manuhattan, Inc.)

Bridgeport, Conn.

Brake Service Guide

Brake Block Installation Guide

Fleet Trouble-Shooting Brake Chart for

Vehicles with Air Brakes

Industrial Friction Material Catalog, for Replacement Parts

Automotive Fan Belt and Hose Catalog, for Replacement Parts

Raybestos-Manhattan, Inc.

Passaic, N. J.

(See advertisement, page 103)

Rubber Products Catalog, for Replacement

Maintenance Wall Cards, for Hose, Fire Hose and Belt

Transmission Belt Engineering Data Book

Conveyor Belt Engineering Data Pages Condor V-Belt Engineering Data Book FHP V-Belt Catalog—List of machine part numbers for replacement belts Packing Catalog, for Replacement Parts

John A. Roebling's Sons Company

640 S. Broad St., Trenton 2, N. J.

Blue Center wire rope recommendation folder: Wire rope for excavators.

S

Schramm, Inc.

West Chester, Pa.

(See advertisement, page 212)

Operates service training school for distributor personnel and operators of pneumatic equipment.

Shafer Bearing Corporation

Downers Grove, Ill.

Instructions on installation of ConcaVex roller bearings.

Shunk Manufacturing Company

Bucyrus, Ohio

(See advertisement, page 116)

Instruction sheets on the application of blade teeth and cutting edges to earthmoving equipment, earthmovers, excavators and snow plows.

Sisalkraft Co.

205 W. Wacker Dr., Chicago 6, Ill. Bulletin and instruction sheet on the application of Sisalkraft curing and protective blankets for road construction.

Snap-on Tools Corporation

Kenosha, Wis

Instruction manuals on Snap-on wrenches, Blue-Point hand tools and Vacuum Grip pliers.

Stoody Company

11972 E. Slauson Ave., Whittier, Calif. (See advertisement, page 145)

Procedural information covering hard-facing of heavy equipment:

Stoody Alloys booklet

Stoody Hard-Facing guidebook Stoody Oil Field Applications book

Stulz-Sickles Company

134-142 Lafayette St., Newark 5, N. J. Instruction sheets on the use of Manganal hard-facing materials and manganese-nickel steel applicator bars for re-sizing worn edges.

Swan-Finch Oil Corporation

205 E. 42nd St., New York 17, N. Y. Lubrication guide for tractors, trucks, buses, construction equipment.

T

Tyson Bearing Corporation

Massillon, Ohio

Instruction manual on the selection, applica-

tion and care of Tyson cageless tapered roller bearings.

U

Union Wire Rope Corporation

21st and Manchester Avc., Kansas City 3, Mo. Booklets: Correct handling of wire rope; socketing wire rope; braided wire fabric sling handbook and riggers' manual. Also distributes educational bulletins periodically.

United States Stoneware Co.

Akron 9, Ohio

Bulletin AB-17: How to build corrosion-resistant floors.

Upson-Walton Company

12500 Elmwood Ave., Cleveland 11, Ohio (See advertisement, page 201)

Instructions on sizes, weights and safe working loads: Wire rope, tackle blocks, rope fittings.



Wall Colmonoy Corp.

19345 John R St., Detroit 3, Mich.

Application manual on Colmonoy hard-facing alloys; bulletin No. Special 3-B on the use of Colmonoy Nicrobraz, instruction bulletin on the Colmonoy Spraywelder.

Weatherhead Company

300 E. 131st St., Cleveland 8, Ohio (See advertisement, page 40)

1-1503: Heavy-Duty Hose Catalog which includes complete assembly in-

structions.

H-16-68: Heavy-duty Hose Ends and

Hose Identification Wall Chart 1-1467-A: Competitive Hose and Fittings

J-103-L: Complete Original Equipment Automotive Parts Catalog

H-1695: Installation Booklet showing photos of typical heavy-duty hydraulic installations.

S. K. Wellman Company

1374 E. 51st St., Cleveland 3, Ohio

Catalog No. 52: Includes installation and mounting instructions for All-Metal Clutch Plates, Facings and Brake Linings for Automotive, Tractor and Industrial Equipment. Individual manuals covering replacement clutch plates, facings and brake linings for the following earthmoving equipment: International, Caterpillar, Allis-Chalmers, LcTourneau.

Whitney Chain Company

P. O. Drawer 1410, Hartford 2, Conn. Instruction book on Whitney roller chain drives.

Wickwire Spencer Steel Division

(Colorado Fuel and Iron Corp.)

575 Madison Ave., New York 22, N. Y. Know Your Ropes: Manual of wire rope selection, application and care.



A REAL WORKHORSE is every grader such as this big Allis-Chalmers model busy moving thousands of yards of dirt daily. Periodic service checks boost its earning capacity.

Know Your Motor Grader Care

MOTOR GRADERS are such versatile construction machines that they are kept in service the year 'round by many contractors. As a consequence, regular preventive maintenance is not always followed religiously, and this useful equipment breaks down.

Periodic lubrication, inspection and adjustments are recommended by manufacturers at various intervals to prevent minor irregularities from developing into more serious conditions that may bring on costly down-time and major repair.

This list of preventive maintenance items following various work periods is provided by Allis-Chalmers for its motor graders. Making due allowance for some differences in design, this practical check list can be a valuable guide for operators of practically every grader, regardless of make.

However, to get specific maintenance information on a particular model, contact your local distributor or the manufacturer. Maintenance manuals are available free of charge to every user.

10-Hour Service

LUBRICATE

Front Axle Pivot Pin Drawbar Pivot Scarifier Reduction Gear Shaft Circle Lift Links Side Shift Links Scarifier Lift Links Knuckle Pivot Bolts Side Shift Shaft Bearing Circle Turn Control Shaft Spindle Bearings Front Wheel Lean Links Drag Link Swivels Steering Shaft Bearing Tandem Pivot Bearings Drag Link Ball Cap

SERVICE

Air Cleaner
Air Pre-cleaner
Fuel Tank Sediment Sump
Fuel Filter—First Stage
Fuel Filter—Second Stage

INSPECT

Crankcase Oil Level Cooling System—Level, leaks, dirt in passages Tires—Inflation, cuts, bruises Wheel Lug Bolts Cutting Edges and End Bits Fuel Pressure Oil Pressure

75-Hour Service

LUBRICATE

Clutch Throwout Bearing Front Wheel Lean Control Shaft Scarifier Control Shaft Bearing Scarifier Worm Gear Shaft Circle Turn Worm Gear Shaft Front Wheel Lean Worm Gear Shaft Sprocket Shaft Bearing SERVICE

Engine Crankcase—Change oil Batteries Lubricating Oil Filter

INSPECT

Water, air fuel, and oil hoses for leaks or signs of collapsing. Tighten or replace if necessary.

Electrical Wiring—Connections, worn insulation, bare wires, broken wires.

Fasteners — Nuts, Bolts, hose clamps. Tighten loose parts. Replace broken or missing parts.

Belts—Fan, generator, power take-off for correct adjustment, worn and damaged belts.

Parking Brake—Adjustment to prevent grader from rolling and for full release.

Tandem Wheel Nuts-Tighten if loose.

Wheel Brakes—Inspect for loose or broken connection. Proper operation.

Cutting Edges, End Bits—Inspect for wear and breakage.

200-Hour Service

LUBRICATE

Fan Generator Starter Scarifier Worm Gear Housing Tandem Wheel Outer Bearings Brake Lever Pivot Pin

Transmission Level Plug

INSPECT

Tandem Housing Level Plugs
Power Control Gear Box
Power Take-off Housing Filler
Plug
Power Take-off Lower Bevel
Gear Housing
Circle Lift Worm Gear Housings
Circle Turn Worm Gear Housing
Front Wheel Lean Worm Gear
Housing
Sideshift Worm Gear Housing
Steering Gear Housing
Rear Axle Center Compartment
End Compartments
Front Wheel Toe-in
Engine Clutch Adjustment

800-Hour Service

(Check pedal free-play)

SERVICE

Transmission—Change oil
Rear Axle—Center Compartments, End Compartments



NO HIBERNATING in winter for this light-duty grader. It is right at home on the city street windrowing snow. Cold weather maintenance dare not be neglected.—Allis-Chalmers photos

Tandem Housings—Change oil
Power Control Gear Box —
Change oil
Power Take-off—Change oil

INSPECT

Valve Adjustment
Injector Timing
Engine Control Adjustment
Gear Shift Linkage Adjustment
Steering Mechanism — Steering
Chain; Ball Joint
Power Take-off Lower Bevel
Gear Housing—Change oil
Circle Lift Worm Gear Housings

-Change oil

Circle Turn Worm Gear Housing
—Change oil

Front Wheel Lean Worm Gear Housing—Change oil Scarifier Worm Gear Housing—

—Change oil

Side Shift Worm Gear Housing
—Change oil
Front Wheel Bearings—Repack

Tandem Wheel Inner Bearing— Repack

Periodic Service

Transmission Top Shaft Rear Bearing (In Engine Flywheel)— Repack when disassembled. Front Wheel Lean Chain Housing—Repack when disassembled. Scarifier Reduction Gear Housing—Repack when disassembled. Steering Gear Housing—Wash and refill when disassembled. Power Take-off Housing—Repack when disassembled. First and Second Stage Fuel Filters—Change elements. Radiator—Drain and flush when necessary or seasonal.

Annual or Slack Season Service

Steering Gear Housing—Adjust bearings, worm and gear. Replace snubber bar and spring. Parking Brake Friction Plate Circle Guide—Clean circle; adjust guides.

Circle Lift—Adjust worm shaft bearings; adjust lift links.

Circle Side Shift—Adjust chain, side shift link.

Brakes—Remove wheels. Clean and replace worn and damaged parts.

Tandem Chains—Inspect, adjust. Tandem Wheel Assembly—Inspect seals, adjust bearing.

Transmission — Inspect gears, bearings.

Control Box-Inspect seals, replace worn jaw clutches.

Welding Rebuilds Power Shovel Tracks



WORN CONDITION of power-shovel sprockets is shown in front row. First step was to cut away worn material (see second row), then weld in new sprocket made of steel bar stock.

HOBART BROTHERS CO., manufacturer of arcwelding equipment, sent in the photographs above showing how far one shovel owner had permitted his crawler track links to wear down (in some cases there is nothing left except a hole) before deciding to do something about it.

Welding equipment came to the rescue and sprockets were rebuilt at a fraction of the cost of new links. First, the remaining old sprockets were cut away with an oxyacetylene torch. New sprockets were made out



CLOSE-UP VIEW from the front shows particularly the shop-built jig used to hold new sprocket in place on track link for tack-welding. Rebuilt sprocket saves money, looks good as new.

of 11/8 x2-in. bar stock.

The sprockets were held in place for tacking by a special jig. Then the jig was removed and the new sprocket welded to the link with two passes of 3/16-in. electrodes.

On this particular shovel, there are 27 sprockets to each track and the cost of rebuilding 27 links with bar steel was \$160. On the over-all job, the power shovel owner was saved \$434 over the cost of buying new links.



FORDING A RIVER deep in Korea and bringing a load of fill in for a new roadway, this Army Engineer soldier-operator has lots on his mind between construction and warfare. One thing he's sure

of, though: the equipment he's operating is the best available. It's been thoroughly tested and proved at Fort Belvoir's Engineer Proving Ground, as shown on the following pages.

Can Equipment Take It?

. . . Army Engineers Find Out at Ft. Belvoir

ALL DAY LONG the roaring of mighty engines, clanking of crawlers, crunching of big tires and whining of wire rope fills the air down Virginia way while a bunch of operators literally tears apart all types of construction machinery by rugged testing. And what's more, the manufacturers approve. All this is taking place at the Engineer Proving Ground at Fort Belvoir, a new department of the Engineer Research and Development Laboratories there.

Rigs are put through extreme paces; some are wrecked in the process



LOAD TRANSFER TESTS on this new Lorain truck crane are performed with increasing weights in test box, within 25-, 50-, and 75-ft diameters and with various sheaves and reeving.



WHAM! This highly portable Galion roller takes a terrific pounding on a cross-country mobility test behind a big army truck. Pneumatic tires are quickly usable and retractable.



MAXIMUM PERMISSIBLE FORCE exerted at blade tip of this Ceterpillar 212 motor grader is recorded by dynamometer on line anchored to Army 6x6; skewing effect is also carefully studied.



YOU CAN BET that all the bugs will be ironed out of this load transfer cylinder by the time EPG is finished with it. Here operator on MRS Model 200 tractor shows how easily he can lift the whole



front end of the Bucyrus-Erie B-170-A 16-yd scraper to put the entire front-end scraper weight on drive tires of the tractor for added traction, particularly in getting out of a cut.

A group of exceptionally capable operators and mechanics, along with a handful of equipment-conscious supervisors and engineers, takes experimental models, pilot machines, regular production-line products and some equipment already purchased and ear-marked for the military and runs it ragged to work out the bugs, uncover deficiencies, suggest modifications or design changes—or reject the rig entirely.

The best part about the pro-

gram is that everybody benefits. First off, there's the manufacturer: he couldn't possibly invest the money, time, area and effort needed for such a complete check. Next there's his distributors: they know that the machinery they're handling has been thoroughly tried and tested. Then there's John Q. Taxpayer: he's sure that his money is going for the best construction equipment available with accent on standard—not special — models. Then finally

there's the contractor, or for that matter, any ultimate purchaser of construction equipment: he'll bene² fit by the correction of any flaws.

Unification is apparent at EPG since they may be testing a pile hammer for the Navy this week, a grader for the Marine Corps next week and so on. Art Rutherford is Chief of the Test Branch assisted by section chiefs Fred Sears, Manning Baumgardner and Joe Smith.

(More photographs on the following pages)

CAN EQUIPMENT TAKE IT? . . . Continued



PIPELINE TRENCHING in one pass! Hauled by a Cat D-8 with angle-dozer, this is one of many John Deere-Killefer trenchers tested at various depths and widths. Right on its heels comes the new



Austin-Western all-wheel-steer grader, filling the trench with ease. Rear wheel unit swivels 15 deg either way on grader which is being tested for U. S. Navy at Engineer Proving Ground.



SPECIAL AXLE FITTING was made up by R. G. LeTourneau, Inc. for their Tournepull to accept retractable power sets lugs (CM&E, December 1951, page 107). Units are ejected for extra traction and retracted by operator without leaving his seat at any time.



LIFTING TEST on this Hough HM Payloader is typical of all lift tests. Rig on weight platform has cable running to deadman.



DIGGING GUN emplacements is best over-all test anyone could give this Allis-Chalmers HD-9 with Baker 9X "No-Pushbeam" attachment (CM&E, November 1951, page 107). EPG suggested



scarifiers (right) which fold back on forward push and loosen additional layers on backup. Tractor in background at left is new Cat 16,000-lb airborne rig, developed after intensive research.

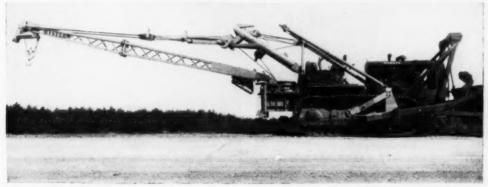
Tests are for the military, but all future equipment users benefit



ONE OF THE MANY experimental or pilot models at EPG is this OC-15 Oliver crawler tractor with scarifiers, special crawlers, unique one-arm hydraulic 'dozer blade lift and extra lighting.



ALL DAY LONG this Tournapull runs in and out of the shed with 60 tons on center wheel of load cart. It's testing steel landing mats, but contractors will benefit by tire info obtained.



ANOTHER EXPERIMENTAL rig is this Hyster Hystaway crane which mounts on a Caterpillar D7 or D8. Primarily designed for beaching operations the gantry and mast can be lowered in order to

make the rig move in and out of landing craft. If the modification tests OK, contractors will be able to move one from job to job on a trailer, with plenty of head room for passing under bridges, etc.

Testers Find Deficiencies; Manufacturers Correct

THE BUCKET SPEED control lever on a front-end loader became sticky after continuous action under heat-the hydraulic swing brake on truck crane lost pressure while rig was traveling and boom struck truck cab-scarifier control arm on a motor grader has a tendency to bend when force is applied -these are just a few of the deficiencies found by the expert operators and the manufacturers are pleased as can be to have them discovered; they set about to redesign and modify the weak spot; then off the rig goes again!



TYPICAL DEFICIENCIES found and reported to manufacturer: gear selector lever on tractor interferes with operator's leg (left);



more interference where clutch control lever strikes a back stay strut. Chalk marks bring out strike area. (More photos on next page)

Expert operators diagnose, mechanics analyze, manufacturers correct



REAR VIEW OF cat twin D-8 on tree-felling operations (CM&E, April 1950, page 54); here EPG not only tests the monstrous machine but also clears additional wooded area for any military needs.



ARCTIC OPERATIONS pose special problems for equipment men and military alike; insulation, heaters, high-flotation tracks, etc. Every contractor will benefit on future winter weather work.



DIGGING OUT a 4-ft V-ditch is one of standard tests for all bulldozers, and another way in which operators at the proving ground can keep drainage right in their own area at the same time.



SMALL TOOLS, TOO are tested. These include rock drills, vibrators, one- and two-



NIGHT OPERATIONS are often a must for military needs; hence, the constant testing of illuminated rigs with candlepower readings taken, recorded and studied. Here again conman portable saws, generators, pumps, drills. tractors will benefit on their night shift work or round-the-clock operations.

BOTH FIT THE SAME STEEL!



Switch as the ground changes...right on the job!

BECAUSE both Timken® multi-use bits and Timken carbide insert bits fit the same threaded drill steel, you can quickly switch to the most economical bit as the ground changes—and you can do it right on the job!

Use Timken multi-use bits for ordinary ground. With correct and controlled reconditioning, they'll give you the lowest cost per foot of hole when full increments of steel can be drilled.

Switch to Timken carbide insert bits for greatest economy when you hit hard or abrasive ground. They're your best bet for maximum speed drilling, constantgauge holes, small diameter blast holes and very deep holes. With both types of Timken bits on hand, you'll have the answer to every drilling problem.

Timken carbide insert bits and multi-use bits are interchangeable in each thread series. And both types of Timken rock bits have these three important advantages: (1) made from electric furnace Timken fine alloy steel, (2) threads are not subject to drilling impact because of the special shoulder union developed by

the Timken Company, (3) quickly and easily changed.

Call upon the 20-years' experience of our Rock Bit Engineering Service for help in selecting the best bits for your job. Write The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".



Timken threaded



inken threaded carbide

TIMKEN

your best bet for the best bit ... for every job



1 AT START OF DEMONSTRATION jeep enters with horn beeping, lights on and wipers flicking to show that it's completely operable.

Ease of Maintenance ...Army Style

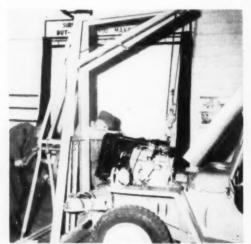
By JAMES M. CONNOLLY, Equipment Editor



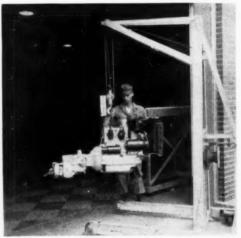
2DRIVER QUICKLY HAULS OUT seats and removes large floor plate to expose steering gear, transmission, transfer case, driveshaft coupling, etc., and disconnects gear shift levers and pedals.



3 HIS COUNTERPART works just as speedily on the front end. Note hinged headlights which can illuminate engine for night repairs; also radio tube-type electrical connections which are foolproof.



LIFTING HOOK IS PLACED through eye in motor block which is directly over center of gravity. Slings or chains often damage fuel lines, wiring and components and are apt to slip and let engine fall.



5THREE MINUTES AND TWENTY SECONDS later the entire power package is hanging free and level with all liquids still in it. Note radiator, engine, transmission, clutch housing and jeep transfer case.

WE HAD JUST been escorted to a building at Fort Knox, Ky., to witness a demonstration in Ease of Maintenance—Army style. And we hadn't long to wait. With a beep of the horn a 4-wheel-drive Willys jeep swung in through the doorway, headlights blazing and windshield wiper flicking furiously back and forth. In it were three soldier-mechanics.

At a single sharp command from the officer in charge they leaped from the machine and two of them began to dismantle it right there before our eyes. We gasped as the driver gave the seats a deft twist and removed them. Next he removed a floor plate the size of a manhole cover; then in rapid succession he disconnected gas, brake and clutch levers; then differential and exhaust pipe; and so on until his job was finished.

Meanwhile his helpmate, working with similar rhythm and precision, flipped up the hood, disconnected battery and headlights, folded down the radiator guard, loosened tie-down bolts and sway braces and performed another halfdozen deft maneuvers. The third soldier wheeled over a winch and lift-arm device, placed the hook through an eye atop the engine and took a strain on the line. At a nod from the others he cranked the winch rapidly and the entire power plant of that jeep came out without a bit of resistance and hung there perfectly level and intact. The soldiers stood at attentionthe officer flicked his stopwatch then he announced: "Gentlemen, that took exactly three minutes and twenty seconds! That's our definition of Ease of Maintenance. The remarkable aspect is the program has been carried out without any additional manufacturers' costs.

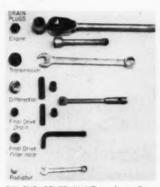
At first only stunned silence greeted this demonstration, then a round of sincere applause.

What has this to do with construction equipment maintenance? That's next on the program for the Army Field Forces Board No. 2—except that they refer to them as engineer equipment. After perfecting the job on the jeep over a period of two years, they gained the admiration, respect and complete

(Text continued on page 104)



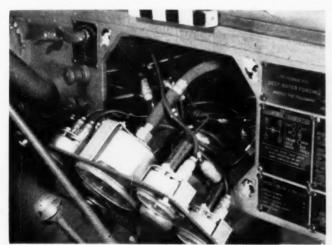
HERE'S ALL THE TOOLS that are needed. Ten pieces at left if one man does the job alone; four additional for the second man.



ON THE OTHER HAND, under ordinary conditions ten different pieces are needed to remove six types and sizes of drain plugs.



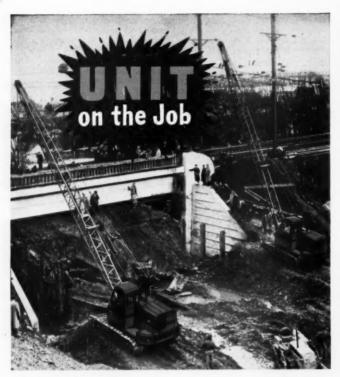
ANOTHER TIME SAVER! Engine stay cables now have a hex shank to clamp for nut removal, and slotted bracket at other end.



ANYONE WHO HAS HAD TO LIE in an uncomfortable position to work behind a dashboard panel will appreciate this one that unscrews and sits in your lap—from a Reo production-line model truck.



EVEN IF YOU WANTED TO, you couldn't put on this propeller shaft slip joint wrong because of the blank spline arrangement. (More photos on next page)



TEAMWORK and Accurate Control

Working as a team, these two UNIT 1020 Cranes moved a 500 TON railroad bridge from its temporary mounting to the new structure in a period of thirteen (13) minutes. This type of job calls for smooth and accurate control of boom and hoist line operation. UNIT'S extra long crawlers, multiple-hinged shoes, wide axles, and hook rollers provide perfect balance and stability. This, together with the FULL VISION CAB for complete visibility, makes UNIT the machine that is dependable and safe to handle efficiently any type of heavy-duty work.

SEE FOR YOURSELF: Let us send you our novel TV Brochure.
It illustrates the complete UNIT line.

UNIT CRANE & SHOVEL CORPORATION
630. WEST BURNHAM STREET . MILWAUKEE 14, WISCONSIN, U. S. A.



1/2 or 3/4 YARD EXCAVATORS...CRANES UP TO 20 TONS CAPACITY
CRAWLER OR MOBILE MODELS . . . GASOLINE OR DIESEL

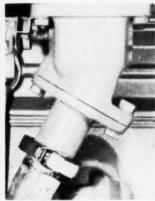


All Models Convertible to ALL Attachments!

ARMY MAINTENANCE . . . Continued



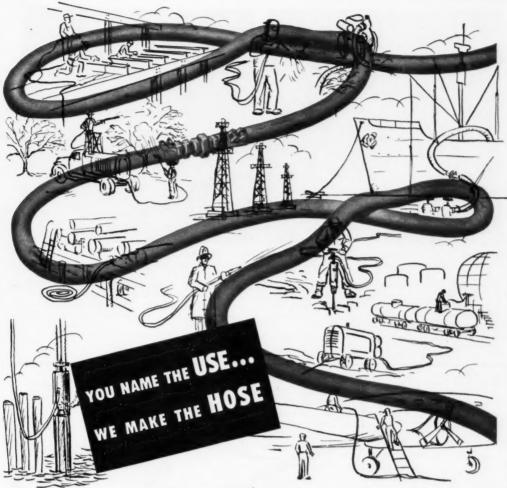
THIS IDEA CAME from old Ford Model T: the radiator tierod bracket is reinforced and slotted—and you won't lose the nut.



THE EXHAUST PIPE has a quick-disconnect clamp; precludes unbolting of manifold.



FUEL PUMP mounting bolts are usually inaccessible; Army men tack-weld nuts on 3-in. bolts as shown. Willys Co. liked the idea; now supplies item from hex stock.



Our Condor Homoslex Hose is an example . . . Raybestos-Manhattan engineers found a way to build strength into a hose-wall without simply adding weight and thickness in more plies. The result, this Hose is flexible as a rope . . . and a real labor saver wherever men must constantly work with hose. On the other hand, Raybestos-Manhattan makes the world's largest and heaviest hose for oil drilling and loading, and for suction • Hose may not be your problem today, but whenever you think of industrial rubber products . . . transmission, conveyor, V-belts, or hose . . . remember R/M engineers have developed exclusive features to give you more for your money in every use. Consult your R/M representative.

MANHATTAN RUBBER DIVISION - PASSAIC, NEW JERSEY



RAYBESTOS-MANHATTAN, INC.









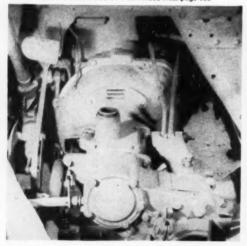


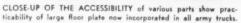




Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Packings • Brake Linings • Brake Blocks

Clutch Facings • Asbestos Textiles • Sintered Metal Parts • Bawling Balls









IT'S A LOT EASIER to pry up the improved brake master cylinder inspection cover (top) than to unscrew the old type with 5 bolts.

cooperation of major truck manufacturers and are now able to perform this removal job on any standard truck up to the 5-ton variety, as well as on several types of tanks and other ordnance vehicles. Now they're eying tractors, grad-

ers, cranes, shovels and the like and rubbing their hands with glee because they know even before they start that these machines present particularly difficult problems for Ease of Maintenance.

But the ideas will come from

every level—even as they did for that first jeep—from privates, civilians, captains, manufacturers, major generals, distributors, operators. Our guess is that they'll do it. And when and as they do, we'll keep you informed.





the door of Morrison-Knudsen's Boise headquarters shops for over-

UNION PACIFIC SWITCH ENGINE brings equipment right to haul. A permanent dock over which machines can be end-loaded on to cars facilitates shipment of rigs out to jobs after repairs are done.

Central Shop Handles Big Rigs

By L. L. WISE, Associate Editor

A COMPETENT SQUAD of traveling master mechanics backed up by well-tooled repair shops makes a hard - to - beat combination for equipment maintenance. That's the conclusion of Morrison - Knudsen Co., Inc., whose Boise, Idaho, headquarters boasts one of the most extensive contractor's shop layouts in the U.S.

Company facilities for thorough overhaul of the bigger, hard-toget rigs is a firm policy with M-K. And it runs counter to the thinking of some other large outfits who don't maintain central shops because they consider their operations too spread out. Such contractors either dispose of their machines when major overhaul is needed or they have the job done in the nearest dealer's shop. (See "Bechtel Depends Upon Distributors for Service and Repairs," CM&E, July 1951, page 54).

But M-K's operations are so numerous and their equipment requirements so great that sale or trade-in generally is out of the question. So they have set up their own shops to do the work and assure a uniform standard of high quality workmanship. The shops are geared for complete overhaul of rigs like Northwest 80Ds and Bucyrus-Erie 54Bs. In the process, they can handle all sorts of equipment down to light plants and booster pumps.

M-K's equipment maintenance setup centers around a squad of traveling master mechanics headed by G. L. Karcher. These men accomplish three important things on their job visits. First of all they trouble shoot. If an important rig is down or not functioning properly, a traveling master mechanic will supervise on-the-job repair. Many times this is done on an emergency, forced-draft basis with the mechanic flying to the site in a company plane-or with vital parts being flown in.

A second function is to advise job mechanics about best routine servicing and repair procedures. In other words, they try to develop a uniform high level of equipment maintenance throughout the com-

The other function of the traveling master mechanics is to deter-



NEW MAIN HOUSING BUSHING is inserted in Northwest 80D chassis by Al Smith, machine shop foreman. Note extreme cleanliness, and extent to which rigs are taken apart during overhaul.



AUTOMATIC WELDING MACHINE builds up a Caterpillar idler drum, using Stoody high-carbon rod. This Westinghouse Weldomatic is supplemented by the shop's other smaller electric and gas units.

MAINTENANCE SHOPS . . . Continued

mine when a machine is in need of a major shop overhaul and see that it is sent back for repair. In this way they establish the work load for the repair shops.

Main shops are at company headquarters in Boise. There are smaller layouts in Los Angeles, Spokane and Salt Lake City—each serving an M-K district operation. All repair shops are under the general control of R. E. Herrick, purchasing agent, and his assistant, M. A. Robinson.

The shops at Boise are geared

to two main elements. One is a convenient Union Pacific spur track and loading dock. The other is extensive machine shop facilities.

Almost all equipment reaches and leaves the Boise shops by rail. Switching service is prompt and the main line is near by for easy shipping to all parts of the country. The loading dock permits simultaneous end loading on two flatcars on parallel tracks. The setup is so convenient that equipment distributors and other Boise contrac-

tors often use it-for a fee, of

Extensive machining facilities form the heart of the repair shop. That's because M-K mechanics find many parts hard to get. So in lots of cases they make their own shafts, bushings, and the like. Sometimes parts can be made cheaper than they can be bought. More often than not, the result is a better-than-new part. In shafts, for example, they use higher grade alloy steels than the manufacturer can afford to put in a new machine.

I. J. Fordham, who heads up the Boise shops, says that he has the best machine shop in the Pacific Northwest. That's attested to by the fact that manufacturers, in some cases, have him make parts for use in repairing other contractors' rigs in the area.

The shops keep available for immediate use plenty of steel rod and shaft stock. They also carry a supply of bushing stock that is custom made for them by a quality foundry—Service Bronze & Brass Works, Inc., of Portland, Ore.

Biggest machine in the shop is a double-spindled 48-in. McCabe lathe with a 20-ft bed. Among other major items are an 18-in.



SHOP-MADE OVEN heated by electric lights keeps Stoody hollow welding rod coils dry in Boise's damp climate. Holding the lid open is Art Fletcher, welding shop foreman.

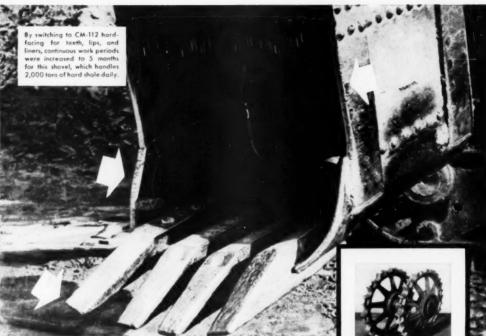
Lodge & Shipley lathe and a 28-in. Cincinnati drill press.

Complete welding facilities are also available. This includes portable gas and electric sets, biggest of which is a Westinghouse Weldomatic. This automatic machine uses a continuous submerged arc requiring considerable quantities of flux, which fuses to a certain extent in the process. Rather than discard this used flux, M-K has equipment

(Continued on page 109)







Want to keep your equipment LONGER ON THE JOB between hard facings? Try CM-112

Hard-facing, as you know, rebuilds worn parts and gets equipment back on the job with minimum delay. It effects considerable economies by prolonging the life of mechanical units and reducing big parts inventories.

But have you considered hard-facing primarily from the point of view of lengthening the working periods between necessary repair sessions? That's where Coast Metals Weld Rod CM-112 is particularly valuable.

This specialized rod permits you to do an altogether outstanding job of hard-surfacing. Thus it not only assures the highest possible standard of long-term protective maintenance, but, in addition, assures you the moneymaking, money-saving factor of maximum output with minimum downtime.

If you have to repair bucket teeth, lips, runners; blade edges; rooters, scrapers, scarifiers, tampers; tractor sprockets, idlers, rollers, grousers; or other units subjected to abrasion and impact, use CM-112. You will be convinced quickly that this top-notch rod spells economy in a big way, every way.

Our representative will be glad to call and give details—tell you how CM-112 is handling numerous jobs throughout your industry. Or if you will let us know your requirements, we'll serve you directly from headquarters.



COAST METALS, Inc.

Little Ferry, N.J.

COAST METALS (CANADA), LTD., Hamilton, Ontario







Tractor parts also stay on the job much longer when hardfaced with CM-112.

PRODUCERS OF SPECIAL HARD-FACING ALLOYS FOR THE CONSTRUCTION FIELD



BRONZE BUSHING STOCK of all kinds is kept on hand because most major overhaul jobs require some of these high grade castings.



WELDING RODS in large quantity and diverse supply are a good gage of the extent of welding work in Morrison-Knudsen shops.

for crushing and screening to make it suitable for re-use.

When a rig comes in for a major overhaul, it is first torn down and steam cleaned using one of two Malsbary cleaners. Then, the parts needing repair or rebuilding are sent to the proper spot. The engine, for example, goes to the engine overhaul shop where it is stripped down further and rebuilt.

Not all work at the Boise shops

involves major overhaul. In one case personally observed, a Bucyrus-Erie 15-B crane came in on a flatcar in the morning, and was reboomed and shipped out to another job that same afternoon. So all types of work are done—from minor alterations to a complete rebuilding.

Most of the repair work is concentrated on shovels, motor patrols, scrapers and other hard-to-get, relatively costly rigs, Repair and overhaul service is afforded to a lesser degree for such equipment as tractors and heavy trucks. Almost no overhaul work is done on light trucks and autos since they are easily replaceable, and costly repairs are not warranted.

The yard adjoining the shops serves as a storage area for equipment. Besides tractors, trucks and

(Continued on page 111)



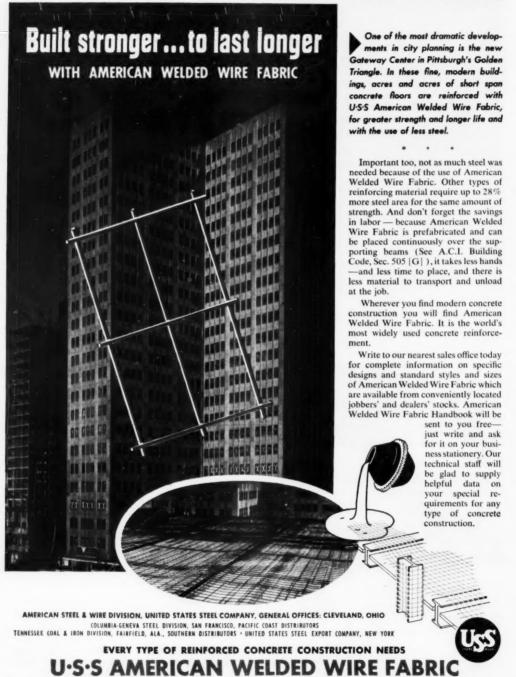
The Thurman Line Includes:

Pit Scales up to 50-Ton capacity
Pitles Scales Batching Scales Liquid Weighing
Scales Wheelbarrow Scales Warehouse Scales This
and other weighing equipment in sizes to fit your requirements

THURMAN MACHINE CO.

(Scale Division)
Established 1918
152 North Fifth Street Columbus 15, Ohio

BIG NEW BUILDINGS IN PITTSBURGH'S GATEWAY CENTER



MAINTENANCE SHOPS...Continued the like, this storage includes a diverse assortment of such things as group beam sections and drug

as crane-boom sections and dragline buckets, all ready to be shipped to any job where needed

Equipment assigned to M-K jobs is charged to that job at a monthly rental. The rate is set to cover



ROCK BITS, too are taken care of. This semi-automatic sharpener is just one of several machines with which two-man crew washes, sorts, sharpens and tempers them.

purchase price plus cost of major overhauling. Charge for an older machine is reduced to 65% of that for a new one.

Joint ventures are handled differently: M-K actually sells the equipment to the job. That makes cleaner accounting procedures. But the company retains an option to repurchase the equipment when the joint-venture work is completed. Naturally, the option isn't always exercised if the rigs are too beat up to be repaired. But when they see a possibility of reconditioning, the equipment is bought back. Then it is usually sent to Boise for overhaul.



SPIKE SEZ: Sure, the goggles are fine, but how about taking the kink out of the hose, also?

Only BANTAM gives you all 3!



High-Speed Mobility

Light-weight Bantam mounts on new or used truck . . . drives anywhere over paved highways, back-road bridges, or black top at full truck speeds . . . maneuvers in close quarters and off-highway locations, where bigger rigs can't go.



Big Work Capacity!

Rugged, fast-swinging Bantam digs up to 90 cu. yds. per hr. as dragline or shovel . . . lifts 10,000 lbs. on crane boom . . . handles ½ cu. yd. concrete bucket, 2400-lb. pile driver . . . digs up to 100' of 5' trench per hr. with hoe bucket. Eight fast-change attachments insure complete job versatility.

\$6200°°

(Less truck and mounting charges F.O.B. Waverly, Iewa)
Price includes complete dragline unit with std. 25 boom, drag bucket, fairlead and additional counterweight. Other attachments extra. Price subject to change.

3 Gob-proved Economy

"One-man" Bantam costs only a fraction of the price of bigger machines . . . runs all day on 8 gallons of gasoline . . . averages less than \$100 repair cost per year (based on actual records of over 3000 Bantams on all types of jobs all over the world). Mail coupon below for full details and free Bantam demonstration.



SCHIELD BANTAM COMPANY
221 Fark St., Waverly, Iowa
Send details on Bantam Dragline
Name
Position
Organisation
Address
City
Sinte

The LOW-COST machine with the BIG work range

BURYING A PIPE LINE... IN THE DRY"

OUTSIDE-WET!







When you need help on a pumping problem, ask Moretrench for FACTS

A MORETRENCH WELLPOINT SYSTEM MAKES THE DIFFERENCE!

To prevent this natural gas pipe line from being washed away by the deep, swift channels of the Red River in Texas, it was buried six to ten feet below the river bed.

Working around the clock, pipe line crews finished the crossing in record time.

MORETRENCH WELLPOINT **EQUIPMENT**, controlling sixteen feet of water, was their constant insurance of safety and progress on this hazardous job.

ORETRENCH CORPORA



YOU STRIP THEM DOWN and rebuild them from the ground up. Complete overhaul is one of the important functions of a distributor.



YOU HAVE BINS AND STOCK to give quick service. This stock, under perpetual inventory, carries 15,000 different articles.



YOU FIND DIRTY FILTERS on equipment both in the field and when it is brought into the shop. Servicing filters is a small but important field routine that can help save real money.



YOU HAVE FUEL INJECTION system test and repair equipment and trained personnel to service these precision units. Injection systems need clean fuel and reasonable care.

How the Distributor Helps With Maintenance

By HOMER C. CAMPBELL, Service Manager H. W. Moore Equipment Co., Denver, Colo.

WE HAVE HEARD that "hell is paved with good intentions." If this is true, we are sure that the Big Three played an important part in the undertaking—the Big Three being a joint venture composed of the manufacturer of construction equipment, the distributor thereof and the contractors of the nation. The statements above may be controversial but, in defense of same, permit us to say that let he who is without sin cast the first monkey wrench.

The manufacturers of construction equipment are sincere in their efforts to produce a piece of equipment high in quality and efficiency. The distributor of that equipment is sincere in his efforts to deliver it so that it will give the customer a profit on his investment. The contractor, or ultimate consumer, is sincere in his purchase of the equipment and has the best of intentions to see that the equipment is operated and cared for in a manner to give him good service at a profit.

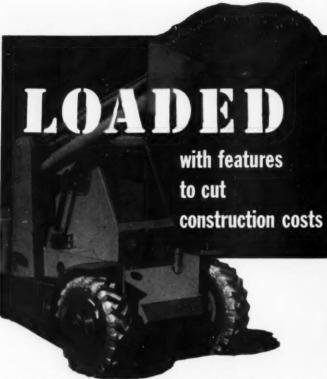
Sad to say, coordination between the three has not always been good and apparently the situation is getting worse.

The distributor is an important cog in the machinery that makes the industry as efficient as it is today. Like the manufacturer and contractor, he must have a base of operation; he must have furniture and fixtures, a sales organization,

an accounting organization, a parts department and personnel and a service organization. And he must be a capitalist—he must have something to use for money.

Furniture and fixtures take in more than chairs and desks. Also needed are parts bins and storage space, shop equipment and all of its ramifications; and tractor-trucks and trailers, service trucks and cars.

The hiring of personnel is a problem. This is a specialized business and it takes time to build a good organization. Utopia in this business will come when we can hire young people in their early 20's with 15 years' experience. The next best thing is an aggressive



SCOOPMOBILE model H FULL HYDRAULIC FRONT-END LOADER

Handle more loads per hour...and a heaping bucketful every time... with the all-hydraulic SCOOPMOBILE engineered to cut costs and accidents on every construction job.

Bucket on powerful hydraulic arm scoops a smooth arc and automatically levels for fast cycle lift to dumping position. Tricycle chassis and power steering give maximum maneuverability. Operator in clear-vision safety cab directs every operation with finger-tip controls.

Years-ahead design and rugged construction give long life and heavy-duty service.

It dozes . . . scoops . . . transports . . . backfills . . . loads all types of bulk materials.

- Standard 3/4 cu. yd. bucket scoops chassis-width track.
- Rated lifting capacity, 4,000 lbs.; standard discharge height to 8 ft.
- Heavy duty industrial engine and planetary drive axle with 3 to 1 reduction ratio gives ample reserve power.
- Can be driven at speeds to 20 m.p.h. and towed from one job to the next.

Quick-change attachments include: Swivel type concrete hopper. Lift forks.

EXTRA-LOW IN INITIAL COST . . . EXTRA-HIGH IN EFFICIENCY
Write for literature and name of your nearest SCOOPMOBILE dealer

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STATIONARY MIXERS • DUO-WAY SCOOP

Box 7527



LIFT TRUCKS . TOWERMOBILE
TELESCOPIC LIFT . STATIONARY TOWER

Portland 20, Oregon

DISTRIBUTOR HELPS . . . Continued

training program. This is expensive in first cost but profitable in the long haul, since you can build to fit the needs of your over-all organization and do not need to unlearn a lot of ideas that do not fit into your scheme of operation. This method lends itself well to the promotion of in-organization individuals to more responsible positions.

Next to providing the customer with the proper tools for his work, the distributor is responsible for maintaining the quality which the manufacturer originally built into the machine. He must provide an adequate stock of service parts. This in itself is a tremendous undertaking.

It requires first a parts supervisor who is completely familiar with all types and models of the machines handled by the organization, and you don't just pick efficient parts supervisors off the

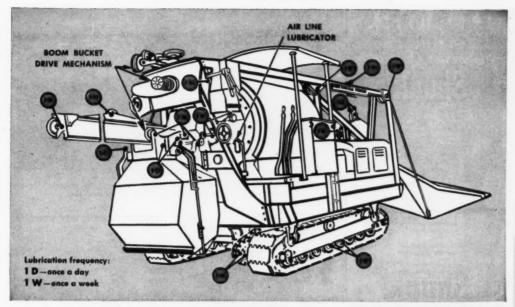


YOU HAVE SPECIAL TOOLS like this OTC double-cylinder hydraulic puller for pins and gears.

street. All this writer has ever known were made within the company. The parts supervisor must have an efficient card index of every part he carries. In our case this covers about 15,000 articles. A daily inventory must be kept as parts information must be available each time the phone rings or when an order comes over the parts desk. The parts supervisor must have an efficient organization for receiving and storing parts and for filling orders and shipping. After all, any one of many small parts can tie up an operation for a contractor just as quickly and tightly as a major item on his equipment.

The parts department encourages contractors to stock fast-turnover

(Continued on page 116)



WHERE AND WHEN TO LUBRICATE. Shown above is just one of hundreds of drawings and photos in Cities Service's new EARTH MOVING AND CONSTRUCTION MACHINERY LUBRICATION BOOK. Individual elements of the machine are shown in detail in book.

THERE ARE OVER 20 WEEKLY OR DAILY LUBRICATING POINTS ON CONCRETE MIXER-PAVER

Whether you're the head of a construction outfit, or the operator of a single piece of equipment...knowing when, where and with what to lubricate is unquestionably one of your most important functions.

This information, complete with drawings, photos and lubrication charts, is all contained in Cities Service's EARTH MOVING AND CONSTRUCTION MACHINERY LUBRICATION BOOK.

This 56 page book outlines the safest, most complete lubrication maintenance procedures for just about every piece of machinery you might use. It was produced for you, as a service to you by the Cities Service Company... producers, refiners and marketers of the most complete line of the finest petroleum products. For your copy, write: Cities Service Oil Company, Dept. G39, Sixty Wall Tower, New York City 5.



FREE: Write Cities Service today for the new EARTH MOVING AND CONSTRUCTION MACHINERY LUBRICATION BOOK.







YOU HAVE TRACTOR-TRAILER to transport big equipment over the highways. Though costly, these heavy haulers cut down time lost on the job by big machines.

parts at their base of operation to eliminate the time element involved in getting parts from the distributor to the job site. The parts department is more vital to the continuous operation of the job than many people realize and is taken too much for granted. It is of great importance to the prospective purchaser of equipment, although few realize it. More purchasers would be better off if they took the time to look into the parts availability situation in making purchases and less time in delving into how cheaply they can buy.

Parts departments are operated with the hope that they will return a profit. However, we feel that the profit must be mutual-profitable also to the purchaser through efficient, fast service so that his equipment is kept on the job for most of the available work time. A program of preventive maintenance, as we have outlined several times in our company house magazine. The Look Around, and as has been outlined many times in CM&E, will materially assist the user in anticipating his parts needs and eliminate much downtime.

So long as we have progress in the industry, we will have changes in equipment, and these changes will be fast and often. Since changes are perpetual, it is essential that engine, machine and serial numbers be provided along with parts orders. The parts supervisor cannot dream up the proper part for a particular machine the owner has in mind. A good preventive maintenance program covers this item and simplifies it no end, since each machine in the program carries an owner's number in the machine index along with the manufacturer's numbers.

The life blood of any distributorship is the service department. The dealer's service department steps in after consummation of the sale and takes a proprietary interest in the equipment from that day on. The service department picks up the equipment at the rail siding, delivers it to the owner's job-site or the shop. It completely services and inspects the new equipment to be sure that it is ready to give the owner a long life of trouble-free service.

Assembling and handling is the first step; we call it A & H. After-delivery service is essential to be sure that the new owner is fully acquainted with the care and use of the equipment—and this is particularly important with the newer, more modern pieces of equipment being introduced.

In our organization we have selected one of our top service men as after-sale service inspector. This man works out of the sales department, under the direction of the sales manager. His duties are to contact each new machine delivery within one week after delivery and then to make periodic inspection of the equipment at intervals of 30 days, whenever possible. This follow-up service is valuable both to seller and buyer. It assures the buyer of getting the most out of his equipment, it assists in service training of operators and users and it builds much good will for the distributor.

Warranty service is a costly item to all distributors today. Predelivery service proper A&H and rigid pre-delivery inspection catches a lot of factory errors before they have time to multiply in the field. Warranty service is the distributors' responsibility and in most cases he assumes it glad-

Specify

Safe working capacity embossed on side plate

DISTRIBUTORS EVERYWHERE

AMERICAN HOIST & DERRICK CO.

ST. PAUL I, MINNESOTA

AMEN!

· We want to echo what Homer Campbell says here about the value of manufacturers' training schools held in the shop of the distributor. Informal sessions give basic information to the less experienced mechanic and bring the veteran up to date. Several of our editors recently spent two fruitful days attending a typical service school ably conducted by Pat Donovan and Mike Gleaton on International Harvester industrial tractors and power units for State Equipment Co., Albany, N. Y. (see cover). Our staff men learned so much that they plan to do this more regularly. This is fair warning: we may drop in on you.-Ed.

ly. It is expensive, but necessary. Service training is a responsibility of the service manager and his organization. We take every advantage of service training offers made by the various manufacturers. We hold monthly evening meetings of our service organization. We try to keep meeting dates flexible to take advantage of visiting factory representatives. These men can always add interest and knowledge to a meeting.

We try to pass our service information on to our owners and users through the pages of our own little magazine which is issued monthly to some 3,000 names on our owners and operators list. This author has a page in the magazine each month and tries to bring to the readers a point or two that will be of interest and of value to them maintenancewise.

We have an annual meeting for owners and operators in our place of business and lean heavily upon our various manufacturer friends for assistance-which is given gladly.

We have had at our shop (twice within the last year) the International Harvester mobile training unit with its cutaway engines, transmissions, injection units and other tractor components. Welltrained personnel conduct these meetings. Manufacturers can do well by bringing more and more of their training programs to the distributor, rather than have the distributor bring a few of his organization to factory schools.

An organization such as ours, with some 30 men in the service department, can better afford to have a two-day service school for its men in its own place of business, having half of the organization in one day and the other half the next. The cost is not a great



Specify LE-HI for all Hose Couplings!

Wherever hose is used there is a LE-HI hose coupling to matchfrom small tubing to large industrial applications.... The complete LE-HI line includes:

- Air Tool Couplings
- **Welding Hose Couplings**
- Steam Hose Couplings
- Fire Hose Couplings **Acid Hose Couplings**







SERIES ASO

Drilling Hose Couplings

- Oil and Gas Hose Couplings
- **Agricultural Hose** Couplings

. . plus complete lines of hose clamps, air valves and manifolds.

Sold through leading distributors and rubber manufacturers only.

"Old Doc" says: "Write now for your free copy of the complete LE-HI catalog"

HOSE ACCESSORIES COMPANY

1700 Lehigh Ave. Philadelphia, Pa.

LE-HI Makes a **Good Connection!**







PREVENTIVE MAINTENANCE is plugged effectively by equipment inspection report tag printed on both sides. Filled-in tags are signed by reliable inspector.

deal greater than sending two or three men on a long trip back east and paying their salaries and expenses for a week or more.

The results of local schools are far more effective than factoryconducted schools because more members of the distributor's organization can participate. Also, the subjects are kept on a local level rather than on a national level. Strange as it may seem, service problems are local in their nature. We here in the high altitude and rough mountain country have problems that are unheard of in other sections of the country. Our fuel injection and carburetion problems are different from those at lower altitudes. Our climatic conditions are more variable. Being in a semi-arid part of the country (normal annual precipitation is about 16 or 17 in.), we are confronted with a severe dust condition in most heavy earthmoving iobs

Excessively high, dry, dusty conditions mean rough going for high-speed construction equipment. Our job is to sell this fact to the users of construction equipment. We must sell them on the importance of a rigid preventive maintenance program and a program that fits the job at hand.

Inspection Tickets

To help promote better care of equipment, we use an Equipment Inspection Report which is attached to each piece of equipment we contact. It shows which operations we have performed, from a preventive maintenance standpoint. This ticket is attached to the machine inspected so that the owner and operator are informed of the condition of all items as listed which we feel are important to him. The inspection procedure called for on the card means the expenditure of some time, but we have found it valuable both to the owner and ourselves. On the reverse side of the card we list a few suggested preventive maintenance procedures.

Now, for fear that some one will feel that the service organization in any distributorship is perfect, permit us to say that we, too, contribute our share to that aforementioned paving job in Hades. But in defense of our errors, we believe sincerely that we also do a lot of good work, and do it to the satisfaction of the majority of our user-customers. A good service department is the best sales organization that can be had.



wherever the Jackson electric vibratory screed is seen in action its great superiority is readily recognized; and those who have used it proclaim it the most convenient and productive screed on the market. It strikes off to any crown, undercuts at curb or sideform, works up to and around all obstructions. Permits pouring slabs up to 30' without center joint. Requires only two men on widest slab and is the only screed that can be rolled back for second passes on 4 rollers. Powered by Jackson 1.25 KVA Power Plant. For rent or for sale at your Jackson distributor. Details on request.

HIGHWAY
WIDENING
and PATCHING,
WALKS, DRIVES,
RAILWAY
PLATFORMS and
CROSSINGS, ETC.

and for ASPHALT COMPACTION A SMALL, HIGHLY MOBILE OUTFIT THAT OUTSTRIPS MUCH MORE COSTLY EQUIPMENT ON MANY JOBS!

The Jackson Vibratory Compacting outfit is the slickest thing for the purpose you have ever seen. The Compactor, small as it is, delivers up to 4500 13/4 ton blows per minute;

propels itself and will compact 900 to 1200 sq. ft. per hour close to maximum density of asphaltic mix used. Easy to move from one location to another by means of quick pick-up trailer unit on which Power Plant is mounted. Also ideal for granular soil compaction. For sale or rent at your Jackson distributor. Details on request.



Page 118 - CONSTRUCTION Methods and Equipment - July 1952

CONTEST

Name this New Gas Engine-driven Welder

Suggest a name for this precision-built, mobile, gas engine-driven field welder. The name should suggest that it is the best selfcontained and mobile welding machine in the welding industry.

The best name, in accordance with the rules, will win you \$300.00 in cash! Second and third place winners will receive \$200.00 and \$100.00 respectively.

Study the specifications below. Think of a name that describes ruggedness, stamina and endurance. Remember that this welder is easy to maintain and service because component parts are conveniently accessible. It starts with a quick surge of power and provides a smooth, forceful arc. It's THE welder for all kinds of welding jobs in the field; for pipeline, maintenance and construction jobs.

HERE IT IS!

Specifications

200 amperes, 40 volts, N.E.M.A. Rated. Step-type welding current central, continuous valtage contral.

110 voits, 21/2 kilowatts auxiliary

1800 rpm. with magnete ignition, automatic idle central and dual manual control.

inted. Two- or four-wheel trailer available

Available with or without instruments, self starter, hoods for complete enclosure.

Weight, approx. 1212 pounds.



Made by Welders ... for Welders

Contest Rules

- 1. This is a naming contest starting June 1, 1952 and ending at midnight July 12, 1952. Contest-ants are to submit names which, in the opinion of the judges, are appropriate for the new A. O. Smith Gas Engine-driven D.C. Welder described. Each name must be submitted on a separate piece of paper or the coupon from this advertisement together with a brief supporting statement and the legibly written name and address of the con-testant. Writing ability will have no bearing on
- 2. The three names selected by the judges as best shall be declared the winners of first, second and third prizes respectively. In the event identical names are submitted by different contestants, the ideas contained in the brief supporting statements shall be considered by the judges in selecting prize winners.
- 3. This is a nationwide contest and is open to readers of this publication and others who use welding equipment, except employees of A. O. Smith Corporation and its advertising agency, and members of their families.
- 4. In the case of ties, duplicate prizes will be
- 3. Winners will be notified by mail, individually. Winners' names will be announced in the Septem-ber issue of this publication in an advertisement this new gas engine driven-welder
- 6. The decision of the judges will be final. No enill be returned but will become the property of A. O. Smith Corporation.
- All entries must be postmarked before mid-night of July 12, 1952 and mailed to A. O. Smith Corporation, Welding Products Division, Mil-waukee I, Wisconsin.
- 8. Entries will be judged by executives of Henri, Hurst & McDonald, Inc., advertising agency.

THIS COUPON MAY BE WORTH \$300.00 IN CASH TO YOU!

A. O. Smith Corporation Welding Products Division, Dept. CM-752 Milwaukee 1, Wisconsin

I offer the following name (and supporting statement) as my entry in your new gas engine-driven welder naming contest:

(write the name you suggest on this line; write supporting statement on margin of this page)

Zone

Name.

State

Know Your Rope Fittings

By WALTER C. RICHARDS Wire Rope Technical Board*

THE SUBJECT of end attachments for wire rope is of great importance to many rope users and should be given careful consideration. There are a number of types of rope-end fittings that are in more or less general use, and others that are somewhat limited in their application. But to use any of these end attachments intelligently, it is necessary to know their strength-efficiencies and their advantages and limitations under various operating conditions. A better understanding of these fittings and their features will result in safer and more economical service

The so-called efficiencies of end fittings (Table I) refer to security of attachment only. They indicate the percentage of useful rope strength that may be expected to be present or available in each case, at the time of installation. When set out in a table these attachments are usually arranged with the most efficient at the head of the list.

To determine the available working load, the breaking strength of the rope (as listed in the manufacturer's catalog) is to be multiplied by the applicable efficiencies shown in the table before dividing by the selected design factor.

The static load efficiencies shown in Table I, however, do not reflect the effectiveness of these several attachments under all types of live loading in service. For example, Table II is a suggested realignment that reflects additional characteristics. And this order would change with other factors being considered. It should be kept in mind that all of these attachments have given good service in many kinds of applications, but some are better suited than others for certain operating conditions.

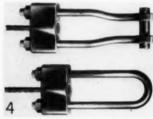
Following is a detailed description of the fittings mentioned in

the tables, and others not shown, and a discussion of their relative advantages and disadvantages.

• Wire rope sockets may be either of the open (Fig. 1) or closed type (Fig. 2), having a tapered bowl into which the wire rope is secured with zinc. There is a "standard" design for 5-, 6- or 8-strand ropes, and another with an elongated bowl (Fig. 3) designed particular-

ly for high-strength strand. When carefully attached according to the method recommended by wire-rope manufacturers, these sockets will hold the wires securely until the rope breaks.

Where vibration is present in service, however, this rigid attachment acts as a sudden arrestor for the vibration waves and causes progressive failure of the wires close to the socket point. If the socket has been completely filled with zinc, many of the wire fractures will be found on the outside. But in some cases, the breaks will occur within the socket bowl and the condition of the rope cannot be accurately judged by inspection. Another disadvantage is that it is seldom convenient to attach these sockets in the field.



• The bridge socket (Fig. 4) is a variation of the preceding type and is subject to the same disadvantages. It is a heavy steel cast-

TABLE I

Fitting	Efficiency .	Fitting	Efficiency
Wire Rope Sockets spelter (zinc) attachment	100%	Clips Spliced-in Thimbles:	75-80%
Compression fittings (swaged or pressed)	100%	3/4 to 1/4 in inclusive	
Compression sleeve attachment loop with or without thimble	100%	$1\frac{1}{4}$ to $1\frac{1}{2}$ in inclusive . 1 to 2 in inclusive	
Wedge Sockets	80-90%	$2\frac{1}{8}$ in. and up	70-75%

TABLE II

Fitting	Strength	Resistance to Vibration and Variable Stress	Ease of Attachment in Field	Compactness of Attachment
Sockets	Excellent	Poor	Fair	Good
Compression Fittings	Excellent	Good		Excellent
Wedge Sockets	Fair	Fair	Excellent	Good
Thimble Splice	Fair	Good	Fair	Fair
Clins	Fair	Good	Good	Poor

*The Wire Rope Technical Board is composed of engineers and technical representatives from each of the wire rope manufacturers in the United States. Mr. Richards is a member of the board and is chief engineer of A. Leschen & Sons Rope Co., St. Louis.

ing, somewhat oblong in shape, with a conical opening in the center and cylindrical holes on each side for bolts which secure the socket to its anchorage.

• Compression fittings (Fig. 5) are attachments into which the rope is inserted and secured by cold



flowing of the surrounding steel under heavy pressure. Here again, the properly attached fitting will hold securely until the rope breaks. All fittings of this type must be factory attached.



• A wedge socket (Fig. 6) is a fitting whose body is tapered in one direction and flat in the other—both lengthwise of the rope. The hollow bowl within this body is of the same shape. The rope is secured in place by passing it around a grooved, wedge-shaped piece of steel and drawing the rope and wedge down into the bowl.

This socket finds wide use, particularly on excavating equipment, as it has the advantage of being readily removable, and may be reattached easily in the field. While this fitting will not develop the full breaking strength of the rope, the ropes on which it is used are generally subject to more or less rapid deterioration. Thus the weakest spot in the assembly would then be somewhere along the rope rather than in or near the socket.

The reason this socket will not develop the full strength of the rope is that, at the bend of the rope around the wedge, there is a certain binding which will cause a new rope to fail at this point when loaded to capacity. Vibration is also more or less suddenly stopped by this socket, and progressive failure of the wires results. But it is not quite as severe as with the preceding types of fit-







tings, and the wire breaks may extend over a greater distance.

• Many rope ends are attached to their respective anchorages by clips (Fig. 7) or clamps (Fig. 8).

The rope is passed around thimbles, which protect the rope in the loop, and the short end is then clipped back on itself (Fig. 9). A certain number of clips is used at specified intervals, as recommended by the clip manufacturers and concurred in by wire rope manufacturers.

Clips are usually of the single U-bolt and saddle type. Clamps comprise a pair of steel castings or forgings with two grooves to match the diameter of the rope and fastened with three or four bolts. With clips, the rope is subjected to a certain amount of crushing. The same is true of clamps, though they are a little less damaging. There is also, in either case, a tendency for the rope to slip through the fittings if they are not tightened up once or twice after the initial load is placed on the rope.

The advantages of such fittings are ease of application in the field, and the fact that the bad effects of



Substantial time and money savings can be realized on all your shoring jobs by using the new SAFWAY SHORE to support forms for concrete slabs, beams, columns, walls, tunnels, etc.

Heavier load-carrying capacities to 9,900 lbs. permit wider shore spacing, reducing the number of shores needed, erecting and dismantlingtime. Shores are easily carried, positioned and adjusted by one man. These profitable Safuway advantages help complete jobs faster:

NO NAILING REQUIRED — In most cases, if upright. U-shaped head plates seat 4 in, or lapped 2 in, lumber.

FAST ADJUSTMENT — Upper member is extended to approximate adjustment and fastened with pin . . . then sleeve nut is rotated, elevating head to exact height required.

NO BRACING NECESSARY—At heights to 12 ft., under most conditions. Bracing brackets available for greater heights.

ONLY 3 SHORE SIZES—Cover a range from 6 to 15½ ft. above mounting surface. Each size permits a 5 ft. adjustment range.

PROTECTED THREADS—Sleeve nut covers threads during transportation and storage, protecting them from damage, rust, concrete, etc.

NO CLOSE DECKING—On high work. Shores easily mounted on legs of standard Safway frame-type scaffold to increase elevation.

Write for this Free Bulletin

RENTED and SOLD by distributors everywher





STEEL PRODUCTS, Inc.

MILWAUKEE 13, WISCONSIN

Tubular Steel Scaffolding and Equipment

ROPE FITTINGS . . . Continued

vibration are dissipated gradually rather than suddenly as in the case of zinc-attached sockets. Progressive wire failures caused by vibration are not entirely prevented, however. And in certain ropes subject to very severe vibration, such a condition develops, resulting in broken wires under the first and sometimes the second clip or clamp. In such cases, inspection is difficult.

· Rather than employing clips or



clamps, the same type of connection may also be made by splicing the end of the rope around a thimble (Fig. 10). The efficiency of the splice itself varies with the diameter of the rope, and in most cases it is more efficient than the clip attachment. The spliced end

is the most effective in dissipating vibration. It is easy to inspect the wires for vibration fractures, or damage from any other cause. An objection to this attachment is that, in general, it must be made at the factory. In the case of the larger and more important ropes, the thimbles used are special and must be returned to the rope factory for attachment to new ropes.

Thimbles used with clamps, clips and splices are of several patterns. Those most frequently seen are the "standard type" or extra heavy



SPECIALLY DESIGNED FOR direct handling of concrete from truck mixers the Gar-Bro Laydown Bucket automatically rolls to a horizontal position when landed on the ground so even a low-discharge mixer truck can dump into it. When lifted it automatically rocks up to a vertical position. Has patented, self-closing, double clamshell gate. Laydown Buckets are available in four sizes 1 to 3 yd. capacities. There are 30 models of Gar-Bro Buckets ranging in capacity from 9 cu. ft. to 8 cu. yds. for handling every type of concrete. Get the facts; write for information today.



GAR-BRO MANUFACTURING COMPANY EAST WASHINGTON BLVD., LOS ANGELES 21, CALIF.

for faster concrete handling



forged thimbles (Fig. 11), solid cast thimbles with pin holes for appropriate anchorage (Fig. 12), and heavy cast thimbles (Fig. 13). These last are similar to the standard type, and are called hawser thimbles.

There are also several fittings of special design recommended by their producers that come under the heading of sockets, clamps, thimbles, etc. They have certain advantages and some of the disadvantages of these respective types. Some of them require special tools for application in the field

In addition to the conventional (Continued on page 124)

GENERALS

GO IN - GET THE LOAD - CARRY IT OUT

and OVER THE HIGHWAY





"OFF-THE-ROAD"

"ON-THE-ROAD"

General D. T. L. with deep, sharp, angled cleats and sturdy, high shoulder lugs. Designed for maximum traction on soft surfaces—forward or backward.

General H. C. T. for trucks that go off-the-road to pick-up, deliver loads. Free-rolling tread and stronger body for more miles, more safety.

GENERAL D.T.L. GENERAL H.C.T.

Make Every Worn Tire Work Longer for More Profit!

Your GENERAL TIRE DEALER will KRAFT SYSTEM RECAP Worn
Tires with the New GENERAL Truck Tire Tread of Your Choice



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ping. You choose from the complete line of on and off-the-road new General Tire treads and he'll put that tread on your worn tire. He can do sectional repairs too. Get Kraft System Recapping—get more profit from every tire.

SPECIFY GENERAL TIRES ON YOUR NEW EQUIPMENT



ROPE FITTINGS . . . Cont. from p. 122



compression fitting, there are special metal sleeves for small diameter ropes that can be compressed around the ropes by special hand-operated tongs. Many logging ropes have a special ferrule type of fitting (Fig. 14) zinced on the end. This is used in connection with a drop-forged hook, eye or shackle type of fitting. Ferrules may also be fitted with removable wedge inserts which are corrugated to fit the rope.

• There are still other compression types of fittings that screw together, or are hinged, and have on the inside a removable pair of liners which are corrugated to fit the rope. Another type of fitting.



which is a combination of shackle and thimble, is the shimble (Fig. 15)

Certain end connections for small ropes are even made with a bent wire or rod which is called a screw anchor. The rope is twisted around this bent rod and back on to itself, forming a lock. A variation of this (referred to as a tailrope hitch) is a forging having an eye or hook at one end, and grooved to receive a rope. The rope is passed around this grooved path in the form of a half hitch which holds itself under tension.

It should be emphasized again that all the foregoing attachments have given good service in many kinds of applications. And, since some are better suited than others for certain operating conditions, intelligently picking the best fitting for the job it is to do will result in safer and more economical service.

For details, see your Viber distributor

or send for illustrated catalog.

Concrete Vibrators Since 1931

726 SOUTH FLOWER STREET

BURBANK, CALIFORNIA

DEPT. 54

COMPANY

"CLOSE and on the INSIDE!"



Notice the clean, straight edge Gradall leaves along the sod. Clean cuts are a Gradall feature!



Gradall reaches for another cut sheer against the building wall and foundation.

EVERY CONTRACTOR and earthmoving machine operator gets a really tough one pitched at him once in a while—and here's an example.

This job required excavating for a new building, right up against two property lines that could not be disturbed. On one side was beautifully landscaped property. On the other, a building wall.

But the Gradall handled this accurate digging job easily. The long, clean strokes of its arm-action

boom hewed right to the line of the adjoining lawn and its shrubbery. Along the wall, the operator really put Gradall's controlled down pressure to work—cutting straight down, close to the foundation, digging deep to make quick work of the excavation. No clean-up hand labor was necessary.

This is just one example of Gradall's clean, cost-cutting work. After completion of a job like this and a quick change of attachments, the Gradall is ready for its next job. You'll find all kinds of work to keep your Gradall busy!

But see Gradall in action—contact your Gradall Distributor for a field demonstration.

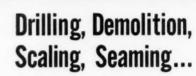


Gradall Distributors in over 75 principal cities in the United States and Canada

GRADALL-THE Wulti-Purpose EARTH-MOVING AND CONSTRUCTION MACHINE

Hammering Problem?

Black & Decker Electric Hammers
Save you Money, Muscle and Man-Hours!



In any construction, maintenance or repair job involving a hammer action, Black & Decker Electric Hammers save you hours of laborious, costly hand labor! These husky tools deliver thousands of sharp, positive hammer blows per minute. They are light, compact, completely self-contained; require no transformer or extra equipment; operate from any electric outlet, A.C. or D.C., or from a portable generator.

See your nearby Black & Decker Distributor for a demonstration. Ask him about quality-built B&D Hammer Tools, too. Write for free catalog of more than 100 Electric Tools to: The Black & Decker Mfg. Co., 659 Pennsylvania Ave., Towson 4, Maryland.

A Hammer Tool for Every Job

STAR DRILL: For clean, round holes in concrete, brick, cement, etc.

BULL POINT: For demolition work on concrete, stone, brick, etc.

COLD CHISEL: For chiseling, scaling, surfacing concrete or metal.



SCALING CHISEL: Removes rust, weld spatter, ald paint.

BUSHING TOOL: For removing form marks or scuffing concrete surfaces.

SEAM TOOL: Cleans out old mortar between bricks or masonry for repointing.



4 MODELS, rated by drilling capacity in concrete for holes up to 1/8", 1/4", 11/4", and 2".

Know Your Lubricants

By C. M. LARSON, Chief Consulting Engineer, Sinclair Refining Co.

CONSTRUCTION EQUIPMENT is highly mechanized and frequently is pushed to maximum output so that the loading conditions are high, the service severe and all of the operations are carried on under the worst possible atmospheric conditions. Little protection can be given against wind-blown sand and dust, or rain and mud.

All of the equipment requires proper lubrication. A considerable amount of standardization may be attained so far as the motive power, compressors, enclosed gears and running gears are concerned. There are many conditions which require more specialized lubricants, such as air tools, material grading and handling equipment, steam-driven units, open gears and wire rope.

The manufacturers of construction and roadbuilding machinery usually supply lubrication charts, specifying the grades of lubricants which they consider most suitable for their equipment. Advances in the development and manufacturing of lubricants have resulted in highly dependable products in all categories, enabling each class to cover a wide field of serviceability.

Automotive Engine Oils

The general characteristics of automotive engine oils (gasoline and diesel) may be briefly described under the American Petroleum Institute's latest designations as follows:

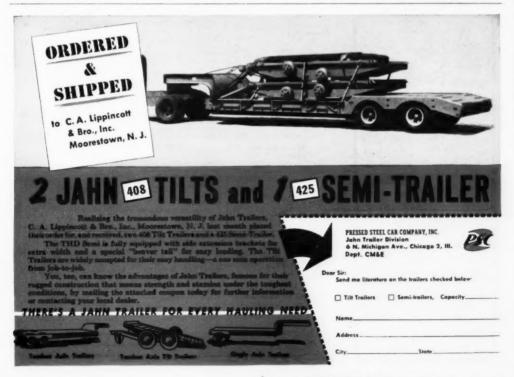
Service MS*—Service typical of gasoline or other spark ignition engines operating under unfavorable or severe types of service

*It is intended that the letter designations shall be used only in combination with the words "For service". It is permissible to indicate suitability for more than one service by multiple designations as for example: "For services MS-MM" or "For services MS-DG". conditions, and where there are special lubrication requirements for deposit or bearing corrosion control due to operating conditions or to fuel, or to engine design characteristics.

Service MM*—Service typical of gasoline and other spark ignition engines operating under moderate to severe service conditions, but presenting problems of deposit or bearing corrosion control when crankcase oil temperatures are high.

Service ML*—Service typical of gasoline or other spark ignition engines operating under light and favorable service conditions, the engines having no special lubrication requirements and having no design characteristics sensitive to deposit formation.

Service DG*-Service typical of





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CONCRETE GRINDERS

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HEATING KETTLES for Asphalt and Tar

AGGREGATE DRYERS for Stone and Sand

ASPHALT PLANTS

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Gasoline powered

Address

LUBRICANTS . . . Continued

General Lubrication Chart for Construction Equipment

AMBIENT TEMPERATURE UNIT OR PART PRODUCT Above 32° F Above 10° F AUTOMOTIVE EQUIPMENT Gasoline engines Heavy-Duty Motor Oil Heavy-Duty Motor Oil SAE-30 SAF-10 Diesel engines SAE-30 SAE-10 Distributor Rotor Shaft Heavy-Duty Motor Oil Multi-Purpose Grease SAE-20 SAE-20 Grease Ignition Distributor, Gen-erator, Starter Magneto Heavy-Duty Motor Oil SAE-20 SAE-20 Engine Fan Hub (if lubricated) Heavy-Duty Motor Oil SAE-20 SAE-20 Grease Multi-Purpose Grease (or Chassis Lubricant) Engine Water Pump (if lubricated) Plain Bearings Multi-Purpose Grease (Or Water-Pump Lubricant) Ball Bearings Multi-Purpose Grease (or Chassis Lubricant) Air Filter Regular Type Motor Oil (or the oil that is used SAE-20 SAE-20 in the crankcase) Heavy-Duty Motor Oil (or the Manufacturer's Hydraulic System SAF 20 SAE-10 Recommendation) Transmissions, Differentials, Hypoids, Final Drives. Multi-Purpose Gear SAE-140 SAE-90 Lubricant Gear Boxes Universal Joints Multi-Purpose Gear SAE-140 SAE-90 Lubricant Multi-Purpose Grease Grease (or Chassis Lubricant) Steering Gear Oil Multi-Purpose Gear SAE-140 SAE-90 Lubricant Multi-Purpose Grease (or Chassis Lubricant) Wheel Bearings Multi-Purpose Grease or Sodium Soap Type Wheel Bearing Grease) General Chassis Bearings Multi-Purpose Grease
(or Chassis Lubricant)
Multi-Purpose Grease
(or Sodium Soap-Type Pressure Fittings Grease Cups Chassis Lubricant) Clutch Release and Pilot Bearings Oil Heavy-Duty Motor Oil SAE-20 SAF-20 Grease Multi-Purpose Grease or Sodium Soap-Type Grease) Silent Chain Drives Slow Speed Engine Oil Medium Medium (or the oil that is used in the crankcase) Turbine Type Oil High Speed Light Medium Light Medium CRAWLER TRACTORS Track Wheels, Support Rollers, Track Idlers* Heavy-Duty Motor Oil SAE-40 or 50 SAE 20 or 30 Grease

Compound and Open Gears Wire Ropes and Cablest Gear Reducers‡

Multi-Purpose Grease (or Semi-Fluid Type Grease) Heavy Gear Lubricant

Wire Rope Lubricant Turbine Type Oil

(Apply Hot) (Apply with Brush)

Medium Heavy Medium Note: Manufacturer's recommendations vary considerably concerning the class of lubricant required †Note: Lubricant should be applied to standing and running cables only, never apply lubricant to cables dragging in dirt

Note: Do not over-fill the gear case because of tendency to heat

HAUT OR BART	anonuct.	AMBIENT TE	MPERATURE
UNIT OR PART	PRODUCT	Above 32° F	Above 10°
	AIR COMPRESSORS		
Portable, Engine-Driven Stationary	Heavy-Duty Motor Oil Naphthenic-Type Oil	SAE—20 Medium	SAE-20 1 Medium
	COMPRESSED AIR TOO	LS	
Rock Drills, Drifters, Paving Breakers and all Piston-Type Tools	Air-Tool Lubricant	SAE-10	SAE-10
	ELECTRIC MOTORS		
Plain and Ring Oiled Bearings Ball Bearings (Grease)	Turbine-Type Oil Multi-Purpose Grease (or Sodium Soap-Type Grease No 2)	Light Medium	Light Medium
	MISCELLANEOUS EQUIPM	MENT	
Hydraulic Couplings Flexible Couplings, Gear, Floating Key and Flexible	Turbine-Type Oil	Extra Light	Extra Light
Pin-Type Roller, Silent Chain and Jaw Types	Turbine-Type Oil	Extra Heavy	Heavy
Oil Grease	Turbine-Type Oil Multi-Purpose Grease (or Sodium Soap-Type Grease No 2)	Heavy	Medium Heavy
Rock Crushers, Gyratory, Suspended Bearing Principal Bearings and Gears	Saturated Steam Valve Oil Premium-Type Motor Oil	SAE-40	SAE-40
Jaw-Type	Multi-Purpose Grease (or Calcium Soap-Type Grease)	No 5	No 4
Plain Shaft Bearings Oil Grease	Red Engine Oil Multi-Purpose Grease (or Calcium Soap-Type Grease No 2)	Medium	Medium
Ball and Roller Bearings	Multi-Purpose Grease (or Sodium Soap-Type Grease No 2)		
Other Heavy-Duty Service Parts Not Otherwise Mentioned			
Oil-Lubricated Grease Lubricated	Red Engine Oil (or the oil that is used in the motor) Multi-Purpose Grease (or Sodium Soap-Type	Heavy	Heavy
	Wheel Bearing Grease)		
STEA	AM ENGINES AND STEAT	M PUMPS	
Cylinders and Valves	Saturated Steam Valve		
External Lubrication Closed Crankcase	Oil Turbine-Type Oil	Light Medium	Light Medium

Grease No 2)

diesel engines in any operation where there are no exceptionally severe requirements for wear or deposit control due to fuel or to engine design characteristics.

Grease Lubricated

Service DS*-Service typical of diesel engines operating under extremely severe conditions or having design characteristics or using fuel tending to produce abnormal wear or deposits.

The former "Regular" oils would correspond to the oils for use under "ML Service Conditions".

The former "premium" oils would correspond to the oils for use under "MM Service Conditions".

Multi-Purpose Grease (or Calcium Soap-Type The former "Heavy-Duty" oils would be divided into three groups: 1. The 2-104B, MIL-0-2104, and Supplemental List 1 oils would all fall into the group of oils that would be recommended for use under "MS Service Conditions". These three types of oil are now represented by the first line, high-quality trademarked oils now distributed by various oil companies at the filling stations, even though any individual oil company may differ from some other oil company in deciding whether their first line, high-quality trade-marked oil for filling (Continued on page 131)



Barber-Greene MODEL BUCKET LOADER...



SAVES man power-truck time-money
LOADS all free-flowing materials
at 3 yrds. per minute

Cost studies prove that nothing can compete with a Bucket Loader in lowest cost loading from stock piles to trucks.

The B-G constant flow principle virtually eliminates the human element — guarantees the same hourly production all day long, whether the operator is fresh or tired out.

The new Barber-Greene Model 543 is the last word in loading economy. Backed by over a billion cubic yards handled by its predecessors, this machine is ready to cut your loading costs.

The new hydraulically controlled trimmer-conveyor combines with time-proved B-G advantages — such as the Spiral Feed, Cleanup Scraper, automatic Overload Release and Floating Boom — to save appreciable manpower on every job. With its 15 m.p.h. road speed, the 543 can get to the job fast and move from pile to pile in a hurry. It is built for high production through years of low-cost service. In addition, it is convertible to a Snow Loader for year-round usefulness.

BARBER-GREENE COMPANY

AURORA, ILLINOIS, U.S.A.

Revised SAE Crankcase Oil Classification

Viscosity Range, Saybolt Univ., Sec.

* 130 0 311	, nange, sayoon onn.	, 500.			
at	OF		at 210 F		
Min.	Max.	Min.		Aax.	
_	4000				
6000 (Note A)	less than 12,000	_			
12,000 (Note B)	48,000	_			
-		45	less	than	58
		58	64	66	70
	_	70	95	46	85
-	_	85		110	
	Min.	Min. Max. 4000 6000 (Note A) less than 12,000 12,000 (Note B) 48,000	Min. Max. Min. 4000 — 12,000 (Note A) less than 12,000 — 12,000 (Note B) 48,000 — 58 — 58 — 70	Min.	Min. Max. Min. Max. 6000 — 4000 — 48,000 — 45 — 12,000 (Note B) — 58

Note A. Minimum viscosity at O F can be waived provided viscosity at 210 F is not below 40 Saybolt Seconds Universal.

Note B. Minimum viscosity at O F can be waived provided viscosity at 210 F is not below 45 Saybolt Seconds Universal.

station use should be a 2-104B, a MIL-0-2104, or a Supplemental List 1 oil.

2. The MIL-0-2104 and Supplemental List 1 oils would fall into the group of oils that would be recommended for use under "DG Service Conditions".

3. The Supplemental List 2 oils would fall into the group of oils that would be recommended for use under "DS Service Conditions".

The proposed API booklet describing the new system says: "... Nothing prohibits the use of an oil for more than one service, provided it is suitable for each. In such instances, the designation should indicate those services as, for example, by use of the term, "For Services MS-DG". This would denote an oil satisfactory for severe gasoline engine conditions and less than severe diesel engine conditions."

Entirely new lubricants have been developed by the oil industry in an effort to offset excessive formations of engine deposits and wear resulting from the use of low-grade fuel oils—particularly those containing high percentages of sulphur.

Oils designated "Service DS" or "Service DG" are adapted to unusually heavy service, particularly in automotive diesel engines. Clean engine operation and minimum wear under these conditions requires an additive content higher than found in Service MS oils.

Since the viscosity of lubricating oils influences their application, the user needs help in classifying grades in terms of viscosity. The general designations of light, medium and heavy are not definite enough because they vary with different manufacturers.

The Society of Automotive Engineers has established ranges or limits called SEA viscosity numbers. They constitute a classification of lubricating oils in terms of

viscosity only, without considering other quality factors.

Three classifications are recognized; two for crankcase oils and one for gear lubricants.

An accompanying table shows the essential data for SAE numbers in the normal crankcase oil classification.

In general, the satisfactory performance of engines in service is dependent upon five factors: (1) Operating conditions; (2) maintenance; (3) engine design; (4) fuel; (5) lubricating oil.

Although the crankcase oil is an important factor in engine performance, each of the other items is also vitally important.

Conditions under which the engine operates determine the amount of special attention which must be given. Location of construction work and type of materials handled determine the conditions of service. Digging, grading, leveling or filling tend to create dusty conditions, especially on windy days. The fine particles of sharp grit whipped about are especially injurious, so the air cleaners require constant attention.

High ambient temperature, together with continuous high load conditions, result in high operating oil temperatures calling for more frequent oil changes.

A good preventive maintenance system should be installed to insure keeping the engines in good mechanical condition. The lubricating oil level should be maintained, the air cleaners and oil filter service frequently enough to keep the engine clean. Cleanliness at all times is essential in handling and applying lubricants.

The design of the engine is fixed and may be affected by altitude or some local considerations which may be corrected readily.

The fuel is an important consideration. Gasoline should be of good quality, of good volatility





Raises 2000-pound load at rate of 100 feet per minute.

Pneumatic trailer mounted...finger-tip balance. Easily towed by pick-up truck.

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and free from gum-forming tendencies. The octane number should be high enough to meet all requirements.

Diesel fuel should be of good quality and free from impurities. It should have good ignition quality (cetane number) sufficient viscosity for free metering pump action and comparatively low sulphur content (not more than 0.5%).

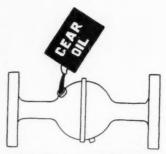
Gear Lubricants

Many different types of gears are used in construction equip-

ment ranging from high-speed, spur-type cut gears, running in an oil bath in enclosed cases, to slowspeed open gears which carry heavy tooth loads.

There are four recognized types of gear lubricants, each available in four separate viscosity ranges.

•The regular or straight mineral oil-type gear lubricant is generally suitable for use in automotive transmissions and in most spiral bevel and normal gear differentials. (This excludes the automatic or semi - automatic transmissions, fluid couplings, torque converters



MANY TYPES of gears go into construction equipment. The correct lubricant is a must.

Rebuilds shovel with new engine and Cotta Reduction Gear



Broad range of ratios

Input torque from 150 to 2000 foot pounds

For use on cranes, shovels, rock crushers, generators, pumps, etc.

THIS INFORMATION WILL HELP YOU

years to come.

pleased"

applications

is now in service, ready to dig and load stone for

costly and hard to get, perhaps a re-building job is

your answer. We shall be glad to give you the bene-

fit of our experience on thousands of speed reduction

The owner reports he is "well

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Diagrams, capacity tables, dimensions and complete specifications sent free on request. Just state your problem—COTTA engineers will help you select the right unit for best performance. May we work with you?



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COTTA TRANSMISSION CO., ROCKFORD, ILLINOIS

and tractor hydraulic systems which require special lubricants). In some gear sets, tooth pressures and rubbing velocities are low enough so that the gears can be lubricated satisfactorily with straight mineral oils.

- •Worm-Type Gear Lubricant is generally suitable for use in truck-type worm gear rear axles under very severe conditions of service. In some worm gear sets, tooth pressures or rubbing velocities are such that they cannot safely be lubricated by Regular Type Gear Lubricants.
- •Mild-Type EP Gear Lubricant is designed for use in many automotive transmissions and spiral bevel differentials under severe conditions of speed and load where there is a tendency shown by the gears to score and wear unduly. Mild Type EP Gear Lubricant has load carrying properties in excess of Regular Type Gear Lubricant.
- •Multi-Purpose-Type Gear Lubricant possesses load carrying properties suitable for hypoid gear and other types of differentials and many transmissions. Many gear sets are in general use for which a lubricant having the highest possible load carrying capacity is needed for most conditions of speed and torque.
- The Multi-Purpose-Type Lubricants are designed to provide maximum protection at high speed and maximum protection under the low speed, high torque conditions existing in heavy-duty truck service. The term Multi-Purpose does not mean that a single viscosity grade may be used for all applications under all climatic conditions; the proper viscosity grade must be selected for each application.

The SAE viscosity number for (Continued on page 134)



Every CUMMINS DIESEL is built not once but twice



Construction men in the field have learned to count on Cummins Diesels for dependable power day in, day out.

What's behind this consistent reliability? One good reason is the fact that every Cummins Diesel is actually built twice. After initial assembly, and run-in testing, every engine is disassembled, inspected; then reassembled and tested again.

This extra care—together with Cummins' economy-proved fuel system and efficient parts and service organization—makes lightweight, high-speed (50-550 h.p.) Cummins Diesels a wise first choice for men who depend on power.

Whatever your power needs . . . whether it's for earthmoving, portable power units or generator sets . . . or any other important jobs . . . your Cummins dealer is the man to see.

CUMMINS ENGINE COMPANY, INC., Columbus, Indiana

Export: Cummins Diesel Export Corporation Columbus, Indiana, U.S.A. • Cable: CUMDIEX (C-41).

Leaders in lightweight. high-speed diesel power!



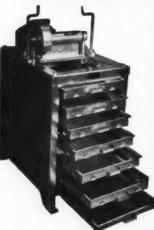
July 1952 - CONSTRUCTION Methods and Equipment - Page 133

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Mechanical TESTING SCREEN



Where exacting specifications must be met the GILSON Screen substitutes assurance for guesswork.

This machine has been designed for efficient sizing of test samples of crushed stone, gravel stag and similar materials. It accommodates up to one cubic foot of sample, making from two to seven separations simultaneously, in five minutes or Smaller amounts of very fine materials may be handled efficiently for research or special mass separation jobs down to 100-mesh or finer.

The screen trays and dust pan are built to withstand hard usage—and will not warp or bind. All trays and dust pans are balanced to the same tare weight—thus eliminating need for transferring sample before weighing.

These and many other time and cost saving features recommend your full investigation of the GILSON Screen.

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GILSON SCREEN CO., Bo Please send me bulletin struction and operation SCREEN.	covering details of con-
NAME	
COMPANY	
CITY	Zone
STATE	CM&E 7-52

LUBRICANTS . . .

Continued from page 132

transmission and rear axle lubricants constitute a classification in terms of viscosity and consistency at low temperatures only. Other factors of quality or character are not considered. The higher the number the more viscous the oil.

Viscosity Numbers		not channel in set	rvi
80	100,000 Sec at 0° F	Max Minus 20	
	75 to 120 Sec at 210° 120 to 200 Sec at 216	0° F Plus 20 F	
	200 C 2100 E M		

The SAE 80 grade is special for use at very low temperatures at which the SAE 90 grade would be too heavy. The SAE 250 is a special one for temperatures at which the SAE 140 grade is too light, or where leakage is a factor.

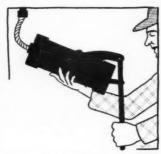
Lubricants for Open Gears

For exposed gears and exposed racks on sliding surfaces such as the dipper sticks of power shovels, a special lubricant should be used having exceptional adhesive and water resisting qualities. This lubricant must be heated until it is sufficiently fluid to apply easily with a brush or by swabbing. When it has cooled it will not drip or be thrown from the gear teeth.

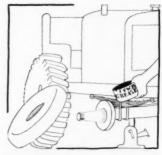
Automotive and Lubricating Greases

In general, seven types of lubricating greases are used on construction equipment. They are:

· Chassis Lubricant-designates a grease applied with a grease gun through fittings into the various parts of the automotive chassis. The performance requirements are: (1) To provide adequate lubrication of slow moving, heavily loaded chassis bearing surfaces: (2) to act as a seal to prevent entrance of dirt and water into chassis bearings; (3) it must not stiffen ex-



PRESSURE LUBRICATION of chassis parts fights off abrasive foreign matter and water.



WHEEL BEARINGS carry concentrated loads and usually are subjected to dusty conditions.

cessively to cause undue resistance to motion in cold weather; must not leak or drip from chassis parts in hot weather; must have high resistance to the washing effect of water and should protect lubricated parts against corrosion by extraneous water.

• Wheel Bearing Lubricants should be greases of such character, structure and consistency as to be suitable for long-time use in anti-friction wheel bearing. These greases also may be suitable for other applications involving high operating temperatures. The performance requirements are: (1) To provide all portions of the wheel bearing assembly with adequate lubrication under operating conditions; (2) to act as a seal to prevent entrance of dirt or water into wheel bearings; (3) must resist leakage under the operating conditions; (4) must resist change in consistency with mechanical working in anti-friction bearings; (5) must protect against corrosion of the wheel bearing assembly.

•Universal Joint Lubricant (Grease Type)—This is a grease suitable for the lubrication of certain type of automotive universal joints. The performance requirements are: (1) Must provide adequate lubrication to all working parts of universal joints; (2) must resist change in consistency with mechanical working and centrifugal force in universal joints; (3) must resist leakage and throw off from universal joints; (4) must protect against corrosion of the universal joint as-

•Water Pump Lubricant-designates greases suitable for the lubrication of the grease-lubricated type of automotive water pumps. The performance requirements are: (1) To provide adequate lubrication of the shafts and bearings of water pumps; (2) must act as a supplemental seal to prevent leakage of coolant through the pump gland; (3) must resist washing or deterioration by hot or cold water or anti-freeze solution: (4) must resist working into the cooling system due to melting or softening at elevated temperatures.

• Cup Grease—designates a moderately soft grease of smooth texture suited for application chiefly by means of grease cups. This product is available in various consistencies which are numbered from zero to five inclusive, as established by the National Lubricating Grease Institute. The firmness, or consistency, increases with the number sequence. The N.L.G.I. numbers denote nothing with respect to the viscosity and quality of the base oil, the kind of soap used, or the stability of the finished grease.

There are no specific performance requirements and there are comparatively few applications for cup grease on the modern automotive chassis. However, Number 2 consistency is the most popular grade and is used extensively for comparatively slow speed and heavily loaded applications where oil cannot be used.

•Multi-Purpose Grease—The advent of Multi-Purpose Grease is actually revolutionizing grease lubrication in both automotive and industrial equipment. This product embodies both bigh- and low-temperature performance properties heretofore available only in individual or combinations of calcium soap, sodium soap and aluminum soap greases.

These properties include the smooth buttery texture of a calcium soap grease, high water resistance of calcium and aluminum soap greases, the high temperature resistance and worked stability properties obtained with sodium soap greases and superior low temperature pumpability over all the other greases.

This versatile product eliminates the need for different greases normally required by contractors. It may be applied by pressure gun, compression cup or by hand.

•N.L.G.I. Numbers — Like SAE numbers for motor oils and gear lubricants, the National Lubricating Grease Institute has arranged a classification of greases (Continued on page 138)

Move 'em faster between jobs...

get extra production with MILLER Tilt-Top!

Where large flat bed trailers are usually too cumbersome for lighter hauling . . a MILLER Tit-Top is always handy for moving slow machines from one operation to another. Self-moving equipment practically loads itself onto titled platform and can be towed to the next operation in jig time . . . cutting non-productive time for operator and equipment to a minimum. Standard platform is 14' x 8' optional 16' available.

MILLER ...

MODEL "B" 10 TON \$1175. The following equipment is optional and outra: hydraulic tilcontrol, two apped winch, electric brakes.

research engineers

IMMEDIATE DELIVERY

SEE YOUR DEALER or WRITE Dept. C-7, 457 South 92nd St. MILWAUKEE 14, WIS.



Southern Superintendent Says

"We load quicker, haul faster and Move More Dirt!"



INTERNATIONAL

POWER THAT PAYS



Atlanta airport expansion job is scene of new triumph for International power

When C. A. A. district headquarters decided to move to Atlanta, Georgia, the east-west runway at nearby Fulton County Airport had to be extended to 5,000-foot length.

One contractor, C. L. Rhodes of Decatur, Georgia, is doing the entire job, including cutting through a 39-foot hill and moving 350,000 cubic yards of sandy clay.

Rhodes' General Superintendent, R. N. Smith, tells how the work is going:

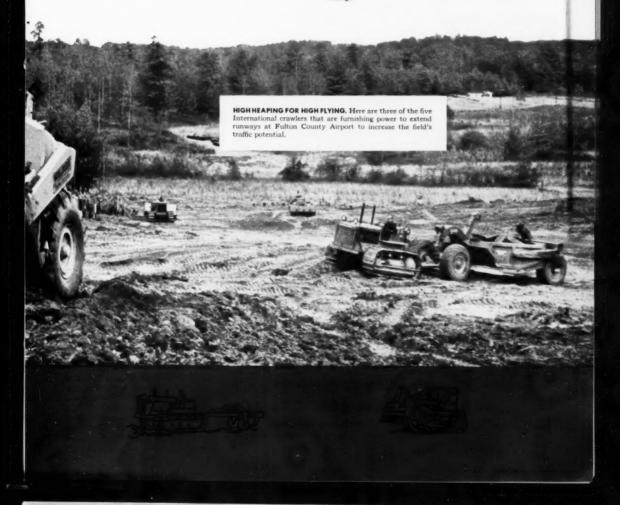
"We load quicker, haul faster and move more dirt with our Internationals than with any other crawlers.

"Our operators push'em to the limit all day long to get the job done ahead of schedule. The tractors get clean filters, fuel and grease, and hard work—more hard work than is reasonable—and they take it month after month without a let down!"! That's what International owners everywhere are finding out. Find out for yourself. Ask your International Industrial Distributor for details.

INTERNATIONAL HARVESTER COMPANY CHICAGO 1. ILLINOIS



JOHNNY-ON-THE-SPOT SERVICE. A fast field service team from transianal's Atlanta distributor rolls up to the job site. Service like this from your International distributor is as near as your nearest telephone, to cut down downtime and keep your equipment rolling!



THE PLANT THAT HAS

STANDAR D-IZED

A CONTINENT...



It's the same in Canada, the United States or Mexico. One impelling reason makes operators buy STANDARD RB Asphalt Plants—PROFITS! That is why the RB has literally STANDARD-IZED a continent. Everybody understands money in the bank. The STANDARD RB puts it there for you through ruggedness and balanced design which eliminates the usual bottlenecks, giving higher capacity—smoother performance. You, too, can STANDARD-IZE for profits. Write TODAY for full descriptive literature.

UNIT BUILT - 8 SIZES, 500 to 6000 POUND BATCH CAPACITIES







STANDARD STEEL CORPORATION

5089 Boyle Avenue, Los Angeles 58 • 419-89 Commonwealth Avenue, Boston 15

LUBRICANTS . . . Cont. from p. 135

by a system grouping them by "sizes." This system considers the consistency of the grease only without regard to quality or any other properties. The harder the grease, the lower the penetration reading. The softer the grease, the higher the penetration reading.

N.L.G.J. Number	ASTM Worked Penetration
0	385-345
1	340-310
2	295-265
3	250-220
4	205-175
5	160-130

•Cable Lubricant—is a highly adhesive, highly penetrating product which will lubricate the individual wire strands and protect them against rust and corrosion. Only standing and free-winding cable should be lubricated. Cables dragging in dirt should not be lubricated.

Other Lubricants

•Steam Cylinder Lubrication—In some instances steam may be used to power equipment such as pumps, road rollers and cranes. For such applications, the rubbing surfaces of the steam valves, pistons and rods are lubricated by applying the oil internally.

Steam Cylinder or Valve Oils are made from the heavy lubricating stocks which remain in the still after all of the lighter constituents of the crude oil have been distilled off. They are comparatively dark in color and retain all of the natural lubricating properties of the crude oil. Saturated steam carries with it a certain percentage of condensate and, because of the washing action of this water. it is necessary to incorporate a certain amount of fatty oil in order to keep the oil on the rubbing surfaces.

The steam temperatures and pressure usually encountered in general contracting equipment requires a Saturated Type Valve Oil of SAE 70 viscosity range, together with a medium percent of compound (3 to 6%).

•External Lubricants — Construction Equipment often includes electric motors, line shafting, and many applications where hand servicing is necessary. For this service a General Purpose Oil is used. General Purpose Oil designates a conventionally refined, non-additive, industrial-type engine oil made from either paraffinic or naphthenic crude.

It renders excellent service in the lubrication of line shafting, plain bearings, moving surfaces of all types not subject to unusual operating conditions, and for applications where unavoidable wastage is an important consideration.

• Turbine Type Oils-These are highly refined and generally contain special additives to inhibit against oxidation, rusting and foaming. Their greatest field of usefulness is found in precision built equipment such as steam turbines, hydraulic systems, hydraulic couplings, electric motors, torque converters and stationary air compressors. They should be used in closed and circulating systems where extended lubricant service life is a requirement.

•Air Drill Lubricant-This is a well-refined petroleum oil, especially treated to provide the necessary body, high film strength and emulsifying properties required for steel against steel lubrication and under wet air conditions of service. It must feed uniformly to the air tools and have the ability to emulsify with any water reaching the units with the compressed air. This is necessary because water has a tendency to wash mineral oil off the rubbing surfaces.



AIR TOOL LUBRICANTS work in very limited clearances; protect steel against steel

Air Drill Lubricant must also have a comparatively low cold test, because of the refrigerating action of compressed air, as it expands while operating the air tools. It must possess a comparatively high flash point so that there will be no danger from ignition in service.

For quick reference we have arranged a general lubrication chart for construction equipment which simplifies the selection of lubricants. When such a diversity of equipment is compressed to a single chart, it is, of necessity, general and all-coverage in nature. To give maximum benefit it must be used in conjunction with the manufacturer's service instruction.

Dependable Equipment for the **Construction Industry**



for 100 Years

Manufacturers of Pile Driving Hammers and Pile Extractors VULCAN IRON WORKS - 329 NORTH BELL AVENUE - CHICAGO 12, ILL.

"We loaded trucks without booming or moving the crane ...

-now you can do things with clamshells you never did before, and do them right from the cab-with the

Tag Maste

No man needed at the truck to guide the bucket that's TAG MASTER controlled. With this tag line pull (UNIFORM at all levels and adjustable to any job) you can turn, spin, snub or cast your clamshell direct from the cab. You get EXACT spotting, with a light drop that adds years to bucket life. In addition, the

TAG MASTER can be used as a dipper trip. Send coupon now for more details of this combination tag line winder and dipper trip-and send it now.



- Less Booming
 Less Swinging
 Less Travel
 Confrol of clamshell
 Can be used as a Dipper Trip
 Increased performance
 Lew cost operation

MORIN	MF	G.	C	D.,	INC.	,	Wes	946 1 So	El	m	Si	tri	 e Me	BS:	5.
Send "TAG	G-MA	ST	ER"	de	tails to										
Name													 		×
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Why you're WAY AHEAD with Matched Equipment

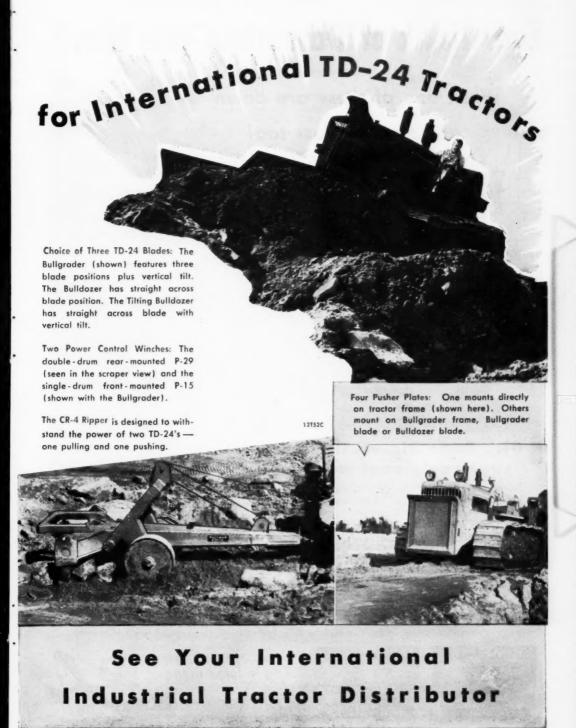
Designed as a Team - Bucyrus-Erie equipment for the TD-24 was developed right along with this modern tractor — every unit has matched characteristics of weight, size, capacity and balance to take fullest advantage of its power.

> Wide Choice to Fit Your Needs-A complete line of equipment for the TD-24 is offered you by Bucyrus-Erie. Here you will find just the right working combinations to fit you needs.

> > Backed by Unequalled Experience—Each of the units in this broad line is backed by more than 70 years of experience in building tens of thousands of earthmoving machines, and by resources and facilities unique in the industry.

BUCYRUS-ERIE CO., South Milwaukee, Wisconsin





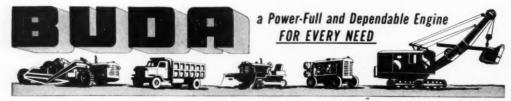
Ever Think of "Downtime" this Way?



Ask your Buda Engine Distributor for information on Buda Diesels for any type of construction equipment. Write for Bulletin 1526 and specifications today. The Buda Company, Harvey, Illinois.

BC-22

between overhauls.



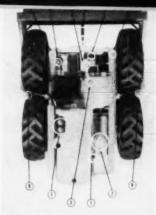
power for occasional overloads...higher torque at

proper speeds - and an average of 6000 hrs.

When to Lubricate

A LUBRICATING SCHEDULE should be arranged to suit each unit of equipment used in roadbuilding or construction work. As a guide, the following time schedule was copied from the operators' manual published by R. G. LeTourneau, Inc., and refers to the Model C Tournadozer.

The lubrication charts supplied by the manufacturer should be carefully checked by the operators of equipment. Manufacturers will be glad to furnish instruction sheets and lubrication charts which apply directly to the units you operate.



OPERATOR MAINTENANCE SCHEDULE

During Operation

Water temperature should be from 170° to 180° Pahrenheit.

Ammeter should show a charge reading when the engine is not

All warning lights should be out. (During the first few minutes of engine operation the lights may flash on, but all should be out before operating the machine.)

Once Each Shift

Check engine oil level. (bayonet gauge)

Turn Cuno oil filter handle one full turn.

Check oil level and condition of the oil in the air cleaner oil cup. Clean out pre-cleaner.

Check water level in radiator. (Use only clean, soft water; if water is hard use a commercial water softener.)

Check water level in batteries.

Check oil level in compressor, governor, and fuel pump.

Lubricate sheave bearings and ball sockets on bowl.

Turn water pump grease cup one turn.

Look for leaks of lubricating oil, air, fuel oil, and water.

Bleed air and condensate from air storage tank.

Check tire pressure.

Every 5 Shifts

Change oil in air cleaner

Every 10 Shifts

Clean air passages in radiator.

Drain, flush, and refill engine crankcase.

Drain, flush, and refill compressor, governor and fuel pump.

Check oil level in the transmission, final drives. (Level plug)

Drain condensate from fuel tank

Lubricate transmission and PCU clutch bearings.

Lubricate engine throttle and control linkage.

Remove and clean breather caps. Change oil in crankcase breather.

Remove plugs in bottom of fuel and lubricating filters and drain aludge and water. Refill.

Remove plug from housing in transmission labrication oil-filter and drain sludge and water. Add oil if necessary.

Check the specific gravity of each battery cell.

Check the tension on fan and compressor behs.

Remove and replace engine lubrication oil filter element.

Add 2 to 3 drops of ôil to the cranking motor and D.C. generator bearings.

Every 25 Shifts

Remove air compressor oil filter element and replace.

Every 50 Shifts

Remove transmission oil filter element and replace.

Renew grease in fan hub.

Clean air cleaner filter body and element.

Every 100 Shifts

Drain and flush transmission and final drive.

Replace primary and secondary fuel filter elements.

LUBRICATION INSTRUCTIONS

NOTE: The lubricating intervals herein specified by shifts of operation, are based on an average work period of approximately 10 hours per shift.

O PUEL PILTER (Primary) DRAIN-Every 10 shifts. REPLACE FILTER ELEMENT-

AIR CLEANER

CLEAN PRE-CLEANER SEDI-CHECK OIL LEVEL-Each shift.

CHANGE OIL—Every 5 shifts.
(Oftener if necessary in extreme

LUBRICANT-Engine cranksass

CAPACITY-To full mark on oil

CLEAN FILTER BODY & ELE-MENT WITH CLEANING FLUID, BLOW DRY WITH COMPRESSED AIR—Every 50

WASH BREATHER & DIP IN CRANKCASE OIL-Every 10

TRANSMISSION

CHECK LEVEL-Every 10 shifts. CHANGE OIL-Every 100 shifts. Clean oil pump screen at same

LUBRICANT-SAR 90 E.P. (estreme pressure) gear oil (abo .SAE 30 E.P. (extreme pressure) gear oil (below 32 F.)

CAPACITY-231/4 gal Fill to level

WASH BREATHER & DIP IN CRANKCASE OIL-Every 10 TRANSMISSION & PCU CLUTCH BEARINGS

LUBRICATE-Every 10 shifts LUBRICANT-High temperature ball bearing gross

AMOUNT-One shot with hand gun. CAUTION-Do not over-lubricate

SHEAVE SEASINGS

LUBRICATE-Each shift.

LUBRICANT-Chassis gresse (heavy) above 32 F. Chassis grasse (medium) below

FINAL DEIVES

CHECK LEVEL-Every 16 shifts. CHANGE OIL-Every 100 shifts. LUBRICANT-Same as transmis

CAPACITY-30 gal. each side. Pill to level plug.

A LUBRICATING OIL PILTER

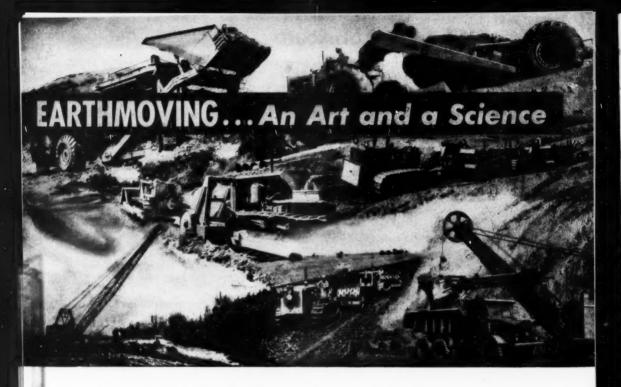
REPLACE FILTER CARTRIDGE -Every 10 shifts

TRANSMISSION OIL PILTER DRAIN-Every 10 shifts.

REPLACE ELEMENT-Every 50

BALL & SOCRET ON BOWL LUBRICATE-Each shift

LUBRICANT—Chanis greate (heavy) above 32 F. Chansis greate (medium) below 32 F.



18a. Off-Highway Truck Operation and Maintenance*

By ALAN S. McCLIMON, Manager, Sales Development, Euclid Road Machinery Co.

DRIVERS should observe the following points:

- Morning and evening checks for cuts in tread and sidewalls, fabric breaks, abnormal wear, air leaks, unusual conditions of rims and wheels.
- 2. Removal of lodged stones between duals, if dual-tired equipment is used.
- 3. Personal check of tire pressures.
- 4. Avoid jumping the load.
- 5. Steer clear of rocks and holes in the road.
- 6. Smooth starts and stops.
- 7. Remove all grease, oil and gasoline on tires as soon as possible.
- 8. Avoid sharp turns.
- 9. Keep authorized speeds.
- 10. Avoid spinning the wheels.
- 11. Do not bleed tires to reduce

air pressure on extremely hot days or after temperature increase has built up the air pressure.

Before Starting Engine

The driver of each shift should check the following:

Engine: Engine oil should be up to high mark on bayonet gage. Air Breather on top of engine should be clean. Air cleaners should be clean.

Cooling Fluid: Radiator should show sufficient cooling fluid.

Fuel: Valve on fuel line at tank should be open. Fuel-oil supply tank should contain sufficient fuel for number of hours unit is to be operated.

*Listed here is an operator's responsibility for a typical bottom-dump unit. There will be differences between various makes and types but this outlines general usage care and doily maintenance. Brakes: Drain cock at bottom of air reservoir tank should be closed.

Lubrication: Mineral oil in transmission should be level with filler plugs on side of transmission. Rear axle lubricant should be level with 1/2-in, plugs in left and right ends of main axle housing 11/2 in. below 1/2-in. filler plugs on forward side of differential. The following Zerk fittings should show that proper greasing has been done: Fan, front engine support, drive line universal joints, clutch throwout bearing, steering connections, brake shafts, spring shackles. On Bottom Dump: Hitch connections, trailer sheaves, and wheel wind bearing. Oil in wheel wind on trailer should be level with oil level plug in side of housing.

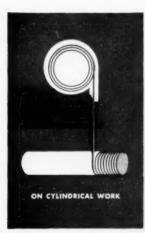
Tires: Air in tires should be to specified pressure.

Starting Engine:

1. Shift transmission out of gear into neutral.

(Continued on page 146)

For automatic welding... STOODY 104





A New Tubular Fabricated Build-up Wire

Stoody 104 was specifically developed to supply properties lacking in high carbon weldments—exceptional strength, ductility, resistance to abrasion and deformation. Designed also as a final overlay for certain types of equipment such as tractor track rails, sheaves, mine car wheels, etc.

Stoody 104 bonds readily to all weldable SAE and AISI steels, forms an ideal underlay for hard-facing alloys. Deposits are readily machinable and respond to heat treatment.

Ask for fully descriptive folder from your Stoody dealer . . . listed in the telephone directory "yellow pages" . . . or write to STOODY COMPANY
11972 E. SLAUSON AVENUE,
WHITTIER, CALIFORNIA

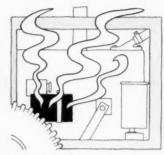
EARTHMOVING . . . Continued from page 144

- 2. Pull up emergency brake lever.
- 3. Depress clutch pedal to insure disengagement of transmission and save breakage of cranking motor shaft.
- 4. Push starter switch button mounted on dash.
- 5. In cold weather pull out T-handle compression release while pushing starter button. When the engine has acquired the highest possible momentum, drop the compression release T-handle, but continue to push the starter button

until the engine fires.

Warning: Do not pull compression release handle when engine is running faster than idling speed or damage to the valves will result. Idling speed is approximately 500 rpm with compressor "cut in", that is compressing air, and 600 to 700 with compressor cut out.

6. Cranking motor: Do not operate the cranking motor for more than 20 sec at a time. If engine



CRANKING MOTOR does hard work, may heat up. If engine does not start promptly, let motor cool 2 min before using again.

does not start promptly, allow cranking motor to cool about 2 min before using it again. While waiting, check the following points:

(a) See that emergency stop is "all the way in."

(b) Check to see that fuel-oil valve at tank is open and that there is fuel in tank.

(c) See that engine compression release is in. Spring automatically keeps it in proper position unless mechanic has blocked it out while repairing.

If engine fails to start in second attempt, call mechanic,

Under no circumstances should the bottom-dump be driven until the engine has operated long



AFTER ENGINE STARTS, wait for air pressure in brake system to build up to at least 60 lb before driving truck.

enough to allow the compressor to build up air pressure in the air reservoir tanks to at least 60 lb, as indicated on air pressure gage on dash.

Note:

(a) Under tough conditions, such as at loading unit or starting on a soft fill, start in the lowest gear (first speed); otherwise, as





CHECK THIS LIST — pin it to your letterhead and mail promptly.

THE GLEDHILL ROAD MACHINERY CO.

with an empty unit or on a forward incline, start in second gear.

- (b) Be sure to complete fully each shift before re-engaging the clutch.
- (c) Selecting the proper gear, the one that will "carry you over," before reaching the steepest part of the grade will greatly aid shifting and prolong transmission life. Avoid shifting on hills.
- (d) Avoid clashing of gears in shifting because this will shorten transmission life.
- (e) Be sure to leave transmission in gear on down grades, and clutch engaged. Do not coast. Sudden engagement of the clutch under this condition is very undesirable.

If the foot exerts a pressure upon clutch pedal without entirely disengaging it, it is generally referred to as "riding the clutch." Such pressure lessens the engagement of the clutch and tends to create clutch slippage. It also caused unnecessary wear on the clutch throwout bearing. Do not ride clutch pedal.

Avoid "fanning" brakes by repeatedly applying and releasing, because this bleeds the air supply in reservoirs. Watch air pressure carefully, as recorded on air pressure gage, to insure good braking power.

Tachometer on dash records engine revolutions per minute (rpm). On down grades, with load and with transmission in lower gears, there is danger of overspeeding the engine. The white pointer on tachometer records speeds at which engine is turning over; the red pointer records highest speed attained by engine. If red pointer records higher than 1,800 to 2,100 maximum rpm, call to the attention of the mechanic.

Super Mechs



WELL-BRED MECHANIC should have multiple arms, fingers, toes to maintain present motive equipment, Army mechanics say.

MAX - MOUNTED CLAMSHELL*



. . FOR THESE MAXIMUM ADVANTAGES:

* Link Belt Speeder MS-70 Zephyrcrane, owned by Chicago Transit

Authority, removing old track fill. Low

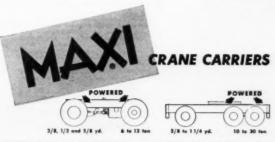
boom operation caused by the low

trolley wires calls for maximum crane

carrier stability.

- one-man control
- operation stability through 360°
- close quarter maneuverability
- fast travel—either direction

Write for additional information



ENGINEERED AND MANUFACTURED BY SIX WHEELS, INC. . LOS ANGELES II, CAL.



Specify Hercules Engines Pependable Power And Operating Economy!

For construction equipment such as power shovels . . . bulldozers . . . earth moving equipment . . . graders . . pavers . . . compressors . . . cement mixers . . . tractor shovels and many other types of equipment—Hercules natural gas, gasoline and diesel engines and power units provide low maintenance, economical

operation and "day-in, day-out" service.

The many thousands Hercules powered applications in use today attest to the enviable reputation of the 65 different models of Hercules gasoline and diesel engines available. For detailed information on any model—write the factory.

HERCULES MOTORS CORPORATION . Canton 2, Ohio, U.S.A.

Engine Specialists Simce 1915



Write Dept. CM&E at nearest office—6168 Bartmer Ave., St. Louis, Mo., Telephone: Delmar 5455; 1218 N. 22nd St., Lincoln Nebraska; 1520 E. Truman Road, Kansas City 6, Mo., Telephone: Harrison 3480.





Southwest Compaction Rollers

SET NEW RECORDS for compacting heavier lifts with fewer passes. On the big jobs where maximum compaction is required the Southwest gets the work done quickly and efficiently.

Weight-box units of Southwest Compaction Rollers oscillate up and down independently and provide a constant, uniform compacting load on each tire regardless of ground contours. There is no bridging, no shifting of load from tire to tire.

Sectionalized tubular yoke allows the use of any combination from 3 to 6 weight-box units. Sizes and capacities range from 10 to 100 tons, suitable for light, medium or heavy duty compacting of earth.

Write for information



handle all maintenance, repair and service jobs!

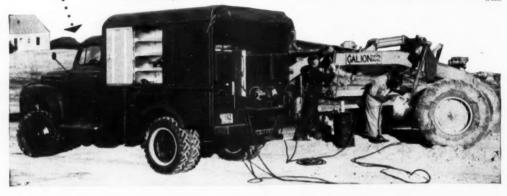
Davey Field Service Unit repairs scraper on construction job.

 The Davey Field Service Unit is a complete portable service shop.

Mounted on any short wheelbase truck, it is ideal for servicing military, mining, construction, oil field, garicultural and other machinery.

Main equipment items are a Model 105 Davey "Auto-Air" Compressor and a 300 ampere. 8 k.w. combination welding and power generator. These are operated direct from the truck engine through a Davey Heavy Duty Power Take-off.

Other optional equipment includes a complete assortment of air and electric tools, oxygen and acetylene welding equipment, floodlights, lubricating and tire inflation equipment . . . tools required to meet the needs of any user. Seats are provided to transport up to 8 workmen.

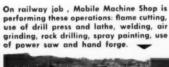


DAVEY MOBILE MACHINE SHOPS

Davey Mobile Machine Shops are larger assemblies of the same type as Field Service Units. They contain substantially more equipment and are capable of handling jobs ordinarily undertaken only by large, central repair depots.



Davey Field Service Unit used by Borough of Manhattan (New York) to service its extensive equipment fleet.





FOR ADDITIONAL DATA, WRITE FOR FIELD SERVICE UNIT BULLETIN E-232 AND MOBILE MACHINE SHOP BULLETIN E-208.

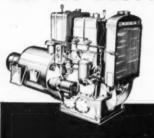


DAVEY COMPRESSOR CO. . KENT, OHIO





HERE IS "Packaged" DIESEL POWER AT ITS BEST!



. . . use NORDBERG DIESELS to solve a wide range of CONSTRUCTION power problems

Nordberg Type 4FS "Packaged" Diesel Power Units were developed to meet the need for simple, compact, dependable units capable of continuous heavy duty service. They are built in 1, 2, and 3-cylinder models, developing from 10 to 45 horsepower or 6,000 to 30,000 watts at medium engine speed to stand the gaff of all kinds of tough construction jobs.

The 4FS series incorporates the same high standards of design, construction and performance that have been identified with world formous Nordberg Diesels for over 35 years. For electric power, for pumping, for energizing lifting magnets, and for scores of straight power applications. you just can't beat the reliability, low operating cost and minimum maintenance offered through the use of Nordberg 4FS Diesels.

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Mordberg Mfg. Co., Milwaukee, Wisconsin Send catalog covering Nordberg Type 4FS Diesels. I am interested in a unit for the following service:

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DUST IS A RELENTLESS ENEMY on construction jobs. These big International crawlers gulp filtered air by the ton. Air intakes extended above major dust zone are big help.

Know Your Diesel Fuel Care

By FRED J. SHRECK, Supervisor of Service, Industrial Power, International Harvester Co.

DIESEL ENGINES are the most common power plants for tractors, scrapers, cranes, hoists, mixers; in fact, almost every machine found on construction jobs. And the diesel engine is mighty dependable, but it must be treated right or it cannot do its job.

The two essential items in the diesel's "food supply" are clean fuel and clean air. Diesels are economical with fuel, but they suck in air like a mile runner on the last lap.

For example, a 1,000-cu in. diesel engine, running at rated rpm, breathes in approximately 865 cfm of air, or more than 415,000 cu ft in 8 hr.

Above all, the fuel and air fed to the diesel must be clean. Clean lubricating oil is desirable and important, but not nearly so important as clean fuel and air. That's why diesel engine manufacturers lavish such care on the design and manufacture of fuel filters and air cleaners. Without these units, the rugged, durable diesel would strangle itself, choked by dirty air or damaged internally by foreign matter in the fuel. These are reasons why it pays big dividends to provide proper storage for fuel and give regular attention to the air cleaner.

It is smart practice to use only (Continued on page 154)



CLOUD OF DUST obscures haul unit, as P&H 5-yd dragline dumps a bucketful. Engine in hauler and the Caterpillar diesel powering the dragline require constant fuel protection.

4F5152

LIMA does it OVER! Up and OVER! up!...proof of the extra versatility and

perfect balance of LIMA CRANES

LIMA truck cranes are engineered not only for the made-to-order jobs, but with extra-capacity for the unusual jobs. Typical is the way this Lima 34-T. with 100' boom and 20' jib, hoisted this 24' x 22' x 8' steel tank to the roof of a Columbia, S. C. building. Though the weight was 12,650 lbs, and the height 108' the LIMA Crane made it possible to handle this tough assignment with ease and precision.

It's on jobs like this that owners and operators appreciate the stability, maneuverability and smooth, easy control of LIMA 34-T Cranes. Their unparalleled stability permits the use of long booms at low angles and extra-high reaches with jib attachments.

Built with crawler, truck or wheel mounting, LIMA Cranes have travel speeds that range from 1 mph to 31 mph depending on mounting. Rubbermounted machines have capacities up to 35 tons depending upon the type, and are available with crane, dragline or pullshovel front ends, Baldwin-Lima-Hamilton Corporation, Construction Equipment Division, Lima, Ohio.





BALDWIN-LIMA-HAMILTON



the grade of fuel recommended by the manufacturer. Some fuel suppliers will offer substitutes that are "just as good" to hear them tell it. But the recommended grade of fuel will produce the horsepower which the manufacturer guarantees. It doesn't make sense to use inferior fuels and thereby lose power.

Buying good fuel is only the first step toward insuring proper food for your diesel. Proper storage of fuel is equally important. Fuel may be properly stored either above or below ground, but the latter method is preferred since underground temperatures are more constant, and there will be less condensation in the tank. However, in either method, provision should be made for accumulation and removal of water and sediment from the tank. A drain at the base of the tank should be provided to remove periodically the water and sediment that settles there.

Fuel Protection

The pump suction pipe should not reach this part of the tank so that there will be no chance of sucking up water when pumping fuel from the tank into tractors or other machinery. A screen filter should be provided in the storage tank filler neck and the filler opening kept carefully capped. Also, the nozzle of the fuel tank hose should be hung in a protected place so that dirt and water cannot enter the supply from that spot.

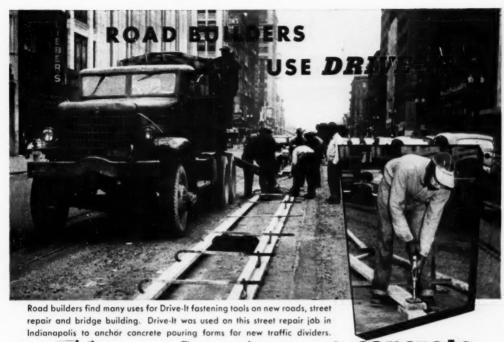
Occasionally, fuel from small containers is emptied into the storage tank. This is bad practice since these small amounts of fuel frequently contain some gasoline or kerosene, and even these small quantities can contaminate the entire fuel supply in the storage tank. It is far better to use this fuel to wash parts or else dispose of it.

Watch the glass water trap on your engine. If water is accumulating in traps at a rapid rate, it's a pretty good indication that contamination is taking place where the fuel is stored.

All these precautions add to the life and efficiency of the fuel filters which guard the injection systems of diesel engines.

Fuel filters are the final guardians of the diesel engine's food supply. They must be nearly 100% efficient to prevent foreign matter from entering the injection system where the extremely close tolerances cannot accept it. A diesel

(Continued on page 156)



split-second fastening to

Drive-It uses a small powder load to drive hardened steel pins into concrete or steel. No power lines! No drilling!



DRIVE-IT is the only powderactuated tool approved by Underwriters' Laboratory.



DRIVE-IT is the only powderactuated tool which requires but one standard power load regardless of penetration desired.



DRIVE-IT cannot be discharged accidentally due to the push and turn sequence. This, plus the large safety pad makes DRIVE-IT triple safe.



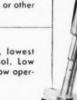
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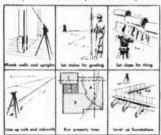
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· Price subject to change without notice.

DIESEL FUELS

. . Continued from page 154

injection pump is built to precision tolerances finer than the best watch, and watches cease to work when dirt enters them.

There are no rigid rules for changing fuel filters, but low readings on the fuel pressure gage ordinarily indicate a stopped-up fuel filter. If the filter must be changed, replace it with the type approved by the manufacturer. Be very careful to insure positive sealing so that the filter will work efficiently. Poor sealing makes the best fuel filter almost useless. However, you won't have to change fuel filters very often if your fuel supply is properly stored.

The other important item in a diesel's diet is air, and that, too, must be kept clean before the engine breathes it. Diesel engine manufacturers design and build adequate air cleaners into their products.

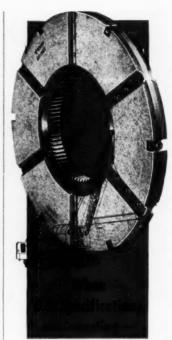
Dust Is the Enemy

On construction jobs the air frequently is extremely dusty and under these conditions it is wise practice to extend the air cleaner intake pipe so that it will reach the cleaner air above the dust level. Erroneous claims have been made that extended air cleaner pipes tend to smother an engine. Actually, the opposite is true, since there is a greater column of air in the extended pipe.

Under dusty operating conditions, it is important to clean out the air cleaner at frequent intervals. The oil tray should be removed and washed and then filled to the proper level with the weight of oil recommended by the manufacturer. But oil changing alone is not enough. Be sure to remove the screens in the upper portion of the air cleaner and wash them in kerosene before replacing them.

Even though the air cleaner is functioning perfectly, there are other spots which can develop air leaks and allow dirty air to enter the engine. For example, leaks are likely to develop at the connection between the air cleaner and the intake manifold and between the intake manifold and the cylinder head which is sealed by gaskets.

These points should be checked at frequent intervals by taking an oil "squirt" can filled with water or kerosene and squirting this fluid around the joints. If any liquid is sucked into the engine, there is an air leak at that spot.



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High output on tough jobs ... extra yardage that completes tight schedules on time ... These are demands which Michigan Power Shovels and Cranes face every day, all year 'round.

Small wonder that Michigan's engineers chose Thermoid to help them develop a new single disc, double face, 12-segment clutch! With over 70 years experience in making friction materials for special applications like this, Thermoid was able to produce a long wearing, stable friction clutch segment which is ideal for the heat compensating and quickchange features of Michigan's clutches.

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Thermoid Company, Trenton, N. J.



Nothing too rough or tough for Thermoid Conveyor Belting

Thermoid's long experience and continuing research in the field, pays off with real economy, maximum efficiency and greater tonnage for your belting dollar. Regardless of the size or kind of material—light or heavy, soft or abrasive, hot or cold, wet or dry—whatever the job, it's a good bet that Thermoid has solved the same or a similar problem with a belt that will do the job better.

In most cases, your Thermoid distributor can select the belt that will serve your needs most economically. Where unusual conditions exist, he will call in an experienced Thermoid sales engineer.

Get in touch with your Thermoid distributor or write direct for a copy of the Thermoid Conveyor Belting Catalog No. 3679.

It will pay you to specify Thermoid



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compact, lighter-weight sawing power. Model 11E18 Electric Chain Saw weighs only 19 lbs. . . . one hand guides it easily. Handles lumber and trees up to 18" thick in one cut, up to 36" in two cuts . . . hard, soft, wet or frozen wood. AC-DC 115-volt, 11 amp.; 230 volt, 5.5 amp. motor.

More power to the pound ... less pounds to handle.

7704 S. Chicago Aven Chicago 19, Illinois Model 12A "one man" gasoline-powered Chain Saw. Full 360° indexing swivel. Cutting capacities: 18 to 42 inches,



Save money on better finished concrete. Pneumatic, electric, or gasoline engine models.

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You'll like these new, lightweight, easy-wheeling Sterlings, designed for faster material transport service. Famous Sterling balanced construction puts 80% of the load on the wheel... only 20% on operator. Equipped with long wood handles, formed to fit operator's hands. Steel channel legs and reinforcements are just the right height. Means less stoop for operator and greater leg clearance. Steel wheel, roller bearing wheel with pneumatic tire or zero pressure cushion type wheel, can be furnished. Write for new Wheelbarrow Catalog.



Know Your Costs

TRYING TO COPE with increasing costs in construction has made contractors aware of the fact that actual operating expenses on individual units of equipment are not too well known. Manufacturers have done a great deal to get operators to keep daily cost sheets on various types of jobs and conditions.

Few owners keep a machine-by-machine record of operating costs, but here is one who did. He is E. H. Honnen, a former contractor who now is a Caterpillar distributor in Denver, Colo. As an example, he kept accurate cost figures on an earthmoving project for a dam involving the movement of 4½ million yd. of coarse material at an elevation of 8.500 ft.

The following figures do not include costs of operating labor. But the total of other operating costs, showing percentages for repair parts and repair expense, are:

On tractors and attachments, of a total operating cost of \$6.89 per work hr., \$4.44 or 64% were for repair parts and repairing expense.

On motor graders, of a total operating cost of \$2.70 per work hr., \$.99 or 37% for repair parts and repairing expense.

On $2\frac{1}{2}$ -cu yd shovels, total cost of \$18.40 per work hr, with \$12.10 or 60% for repair parts and repairing expense.

On $3\frac{1}{2}$ -cu yd shovels, total cost of \$20.70 per work hr, with \$14.42 or 70% for repair parts and repairing expense.

On $13\frac{1}{2}$ -cu yd bottom-dumps, total cost of \$5.62 per work hr, with \$2.97 or $52\frac{1}{2}\%$ for repair parts and and repairing expense.

These costs were based on two working seasons, working two 8-hr shifts and on 12 tractors, 34 bottom-dumps, one 2½-yd shovel and three 3½-yd shovels.

This brief summary points up the high cost of keeping construction equipment productive. Actually these are pre-Korea figures on a project now completed. The reader can apply his own estimated percentage of markup necessary to bring these costs into line with going prices today. Honnen presented this information during a talk last spring at the Earthmoving Industry Conference, Central Illinois Section of the Society of Automotive Engineers.

you can go down and get it 15" below grade up and get up above grade

-and do it with CROWD AND HOIST . . . no wheel traction . . .

If you are doing excavation work you probably realize the mechanical advantages of big shovels—simultaneous and independent hydraulic crowding and hoisting, variable crowd action at any dipper position, changeable buckets, etc. But, do you know all these advantages have been engineered into the Dempster-Diggster to give you a faster, more versatile excavator, on pneumatic tires with a 1 cn. yd. capacity. In addition the Dempster-Diggster does anything a conventional front end loader can do—and does it faster at less cost with its 1½ or 2 cu. yd. bucket. In excavation the Dempster-Diggster is without equal for working in tight places . . . dumps at 11'3" height . . . travels at truck speeds from job to job. The versatile Dempster-Diggster is a fast, power-packed excavator and loader you can't afford to be without! Write today for our new catalog No. 1032. A product of Dempster Brothers, Inc.

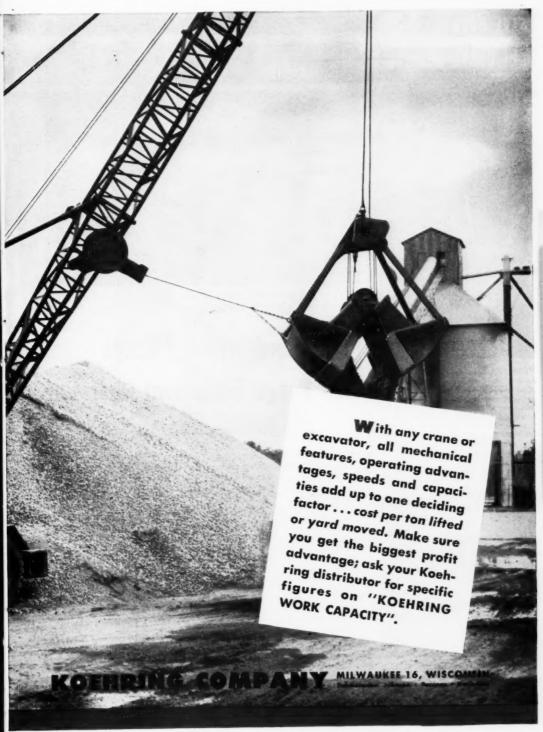


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"KOEHRING WORK CAPACITY"





SAVE HOURS.

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PIPING JOBS



PUSH PIPE UNDER STREETS, TRACKS,

walks, floors and other obstacles with a Greenless House. Hydraulic Pipe Pusher. One-manoperated, portable, simple to operate. No tearing up of pavement . . . eliminates extensive ditching, tunneling, back-filling, tamping, repaving, Cuts job time to a fraction. Greenless Hydraulic Pipe Pusher often pays for itself on first job. Two sizes—model shown above for pushing 34 to 4° pipe. Larger unit, below, for pipe over 4°, concrete sewer pipe and large drainage ducts. Power pump also available for extra ease and speed of operation.





Write today for descriptive literature. Greenlee Tool Co., 2187 Columbia Avenue, Rockford, Illinois, U.S.A.



Fig. 1 . . . MINE CAR WHEELS are rotated at a predetermined rate by fixture, as circumferential bead is laid. Overlapping passes are made from wheel flange to outer edge.

Hardsurfacing Keeps Iron Range Equipment Operating

By MARSHALL FORD, District Engineer, Lincoln Electric Co.

REPLACEMENT PARTS shortages have sparked an increase in hard-surfacing by welding of worn parts on the Mesabi Iron Range on shovels, bulldozers, crushers, ore cars and washing plants. This equipment must handle millions of tons of extremely abrasive rock, taconite and ore every month under conditions of temperature and penetrating frost.

Harder material is being encountered, and equipment must be moved to mine widely scattered deposits. Because of these severe conditions, service life of wearing parts is measured in terms of hours and replacement is a constant activity.

To meet this situation, hardsurfacing with arc welding has been applied to double and triple the service life of parts by adding only 5 to 10% of the original weight in surfacing weld metal. Critical materials are conserved and service

better than that of the original parts is attained.

The Wallner Welding Supply Co. of Duluth, Minn., has successfully applied the hidden-arc welding process with both manual and automatic equipment to do this job. With three automatic heads and 10 manual units operating 24 hr per day, Wallner has done such jobs as rebuild tractor rollersforgings of SAE 1045 steel-to give 1,000 hr of service. High carbon (1045) mine car wheels are built up, when worn, to give 4 yr of service. Repaired cast steel tractor idlers of SAE 1035 steel give 3,-000 hr

Dipper teeth, which must be replaced in the Iron Range about every 8 hr, are restored for use, conserving 80% of the original critical manganese material and at 30% of the replacement cost. Crusher mantles from gyratory

(Continued on page 164)



In addition ...

VICTORALLOY cuts rod cost and reduces welding time 25 to 50%.

HERE'S HOW:

VICTORALLOY is an all-position rod... vertical surfaces, end bits, blades, etc., can be hardfaced in position.

High burn-off rate, 6 lbs. per hour, speeds application.

One pass with VICTORALLOY'S high, rounded bead deposits as much metal as most rods do in two passes.

No slag interference—you eliminate chipping and cleaning.

Try VICTORALLOY NOW. Order a supply from your VICTOR dealer TODAY.

Write for literature on complete line of hardfacing alloys by VICTOR. Dealer inquiries invited.

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2 to 1

VICTORALLOY is designed especially for track rollers, idlers, grousers, end bits, cutting edges, tamper feet and other parts subjected to continual abrasion and severe impact. Its high chromium content produces a hard, polished finish that reduces friction . . . and doubles working life.



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Face-Wall form unit

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HARDSURFACING . . . Continued from page 162



Fig. 2 . . . CRUSHER CONES also are rotated, as hardsurfacing beads are laid around the wearing surfaces. Hardsurfaced cones produce two to three times tonnage of original facing.

crushers, made of critical manganese steel, process twice the tonnage after rebuilding by hardsurfacing that a new one will deliver.

Hardsurfacing, or hardfacing, is accomplished by depositing chromium carbide or high carbon steel to worn surfaces. Where parts are worn beyond the practical limits

of hardsurfacing, surfaces are built up with high carbon steel prior to hardsurfacing. Layers ranging in thickness from 3/32 in. to 2 in. or more can be applied to the worn surfaces a V_8 -in. layer can be applied at a single pass. Machining or grinding to the required dimensions completes the operation.

(Continued on page 168)



Fig. 3... CRUSHER JAWS are tack-welded back-to-back to minimize distortion. Lincolnweld carriage moves along beam depositing parallel beads of chromium carbide weld metal.

"With loads averaging over 6½ tons, my running costs are

Only 5¢ a mile"

says L. B. Myers, Joplin, Mo.



L. B. Myers Joplin Cement Co., Joplin, Mo.

"You can't beat a Ford Truck for gas, oil and repair economy!"

"Delivery of ready-mixed concrete is one of the toughest jobs for any truck," says Mr. Myers, "and I need a truck that can take a real beating and keep going. Our Fords have proven most satisfactory." Mr. Myers entered his F-6 in the Ford Economy Run. In 5,421 miles of travel he paid only \$264.20 for gas, oil and maintenance with no repairs. That's just 5¢ a mile!

This model F-6 chassis mounts a Smith 3-yard mixer. There are larger and smaller Ford Truck models to meet your hauling needs. Choice of five engines includes Truck V-8 (now 106 h.p.) and Big Six (now 112 h.p.)



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Two years of testing show how well the new Ford Low-Fitterion engines perform under the most severe conditions. They passed scores of 100-hour "destruction" tests. One model alone ran as much as 50,000 dynamometer test-hours, over 500,000 vehicle test-miles.

SEE how little it costs to run a Ford Truck in your kind of work! The figures are in this 144-page summary of results from the 50-million-mile Ford Truck Economy Run. See it at your Ford Dealer's now!

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Using latest registration data on 8,069,000 trucks, life insurance experts prove Ford Trucks last longer!

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Advanced new Low-FRICTION design in three new high-compression, overhead-valve engines, liberates power held "captive" by engine friction!

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Name (PLEASE PRINT PLAINLY)

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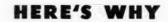
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DON'T store V-Belts in a hot dry room or expose to the direct rays of the sun.

DON'T hang belts in such a way that their shape will be distorted.

Do specify and store *Bull Dog V-Belts* in adequate supply for your normal replacement requirements. With Bull Dogs on the job "normal" replacements are few and far between.



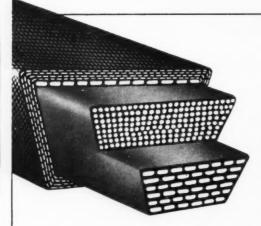


Their DURABLE COVERS withstand the severe wearing action of the sheave while sealing the belt against grease, dirt, moisture.

There's MINIMUM STRETCH due to a new, exclusive technique which results in fewer takeup adjustments, reduced slippage, longer belt life.

There's a STRONG, SPECIALLY ENGINEERED CORD SECTION with high tensile strength, increased load carrying capacity, ability to absorb shock loads.

The belt TAKES HEAVIEST FLEXING because BWH quality-controlled compounds run cooler and do not crack or deteriorate under severe flexing.



Your BWH distributor will be glad to show you how Bull Dog V-Belts have the covers, the cords and the compounds to cut your belting costs. Call him today.



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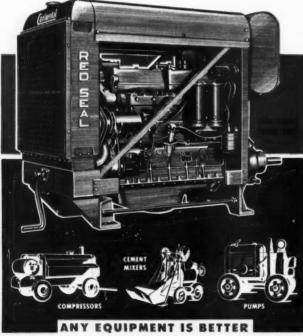
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WITH CONTINENTAL RED SEAL POWER

Continental Motors Corporation
Muskegon Michigan

PARTS AND SERVICE EVERYWHERE

HARDSURFACING . . . Cent. from p. 164

Mine Car Wheels: The wheel is secured to an automatic fixture that revolves at a predetermined rate (Fig. 1, p. 162). An automatic head mounted on a self-propelled travel carriage is positioned over the wheel. With each rotation of the wheel, a circumferential bead of weld metal is deposited.

By moving the self-propelled unit along its beam, overlapping circumferential passes are made from the wheel flange to the outer perimeter of the wheel. Ten passes are required to build up a wheel across its width. The wheel is rebuilt to its original dimension. For best service mine wheels are not surfaced with an unusually hard material because the service life of the track would be affected unfavorably.

Crusher Cones: The operation (Fig. 2, p. 164) is essentially the same as that illustrated in Fig. 1. But the conical shape of the crusher part makes it necessary to bring the surface to be built up to an average plane. Speed of rotation must be changed to compensate for the variation in the position of the head relative to center, as the surface is built up.

The head moves on its beam 3/16 in. for each rotation. An even buildup of hardsurface on the crusher cone is made with the thought foremost of placing the best known material in the strategic position to give maximum wear and maximum crusher efficiency. Eighty percent of the original material is conserved and crushers produce from two to three times the tonnage they did originally.

Crusher Jaws: The 36x42 crusher jaws (Fig. 3, p. 164) are welded back-to-back to minimize distortion. The jaws are tack-welded together for the surfacing operation, then cut apart. The carriage of the Lincolnweld moves along the beam parallel to the crusher jaws depositing a bead of chromium carbide weld metal. The fixture positions the irregular face of the jaw for each successive overlapping pass. The contact assembly of the Lincolnweld is also positioned laterally for the optimum welding position. Approximately 90% of the original material is conserved, while service life is doubled.

Dipper Teeth: Worn dipper teeth are rebuilt by repointing. The blunt point is cut off and a new wedge bar welded on with a copper-manganese electrode. The worn part of the tooth is then rebuilt to size with a semi-austenitic type hardfacing electrode. Hardsurfacing material is welded on the edges and in longitudinal ribs on the faces. Replacing the hard surface as it wears greatly extends the life of the dipper teeth.



Fig. 4 . . . CRAWLER TRACK LUGS are built up by welding on bar stock with manual hidden-arc process. Track on overhead mandrel is rotated to best welding position.

Tractor Lugs: By mounting the crawler track on a mandrel revolving through 360 deg (Fig. 4), the work can be brought into best working position for each worn lug. Bar stock is cut to size and buttwelded to the worn lugs with the manual hidden-arc process. This process saves 8 hr welding time over regular welding methods previously used. The high current density used with the process gives deep penetration with fast travel speed. 350 amp are used on 3/32-in. dia electrode.



When you buy an Ellicott Dredge you buy SERVICE!



Your dredge is engineered to the job!

Designing a dredge is a highly specialized job—and the dredge you need must be engineered with your problems in mind. That's why Ellicott maintains a large staff of engineers, who consult with you, study your requirements, and recommend the proper equipment for your job.

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At any time while your dredge is in operation, an Ellicott engineer will visit your site . . . perhaps give suggestions for improving performance, or using the dredge for another job. In addition, you are invited at any time to request Ellicott to help with any problems you have.

Consult Ellicott on all your dredging problems!

Perhaps you already own dredging equipment that is not doing the job it should. Here, too, Ellicott will be glad to help you. Drop us a line, outlining your problem. And ask for complete, illustrated Catalog No. 825. Address: ELLICOTT MACHINE CORPORATION, 1605 Bush Street, Baltimore 30, Md.





IN TWO YEARS' OPERATION OUR 4000-LB. MODEL E

Produced a total of over 200,000 tons. In one month produced 20,000 tons in twenty-two 9-hour shifts. Consistently averaged 101 tons per hour, with peak production hitting 125

tons per hour when using heavy aggregates.

Never had a shutdown due to failure of the electric drive system. Handled a wide variety of aggregates, from shell and iron ore to gravel

Produced material for airport runways, expressways, city streets and state and crushed limestone.

highways, on six different jobs, miles apart. Averaged 7 days to take down, move up to 100 miles, and set up.

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says, F. W. Heldenfels, Jr. HELDENFELS BROTHERS Corpus Christi, Texas

MR. HELDENFELS ADDS, "Our Cedarapids Model E was purchased only after careful investigation and personal inspection by Lewis H. Jones, Chief Engineer, and myself, of every type of plant in operation in Texas".

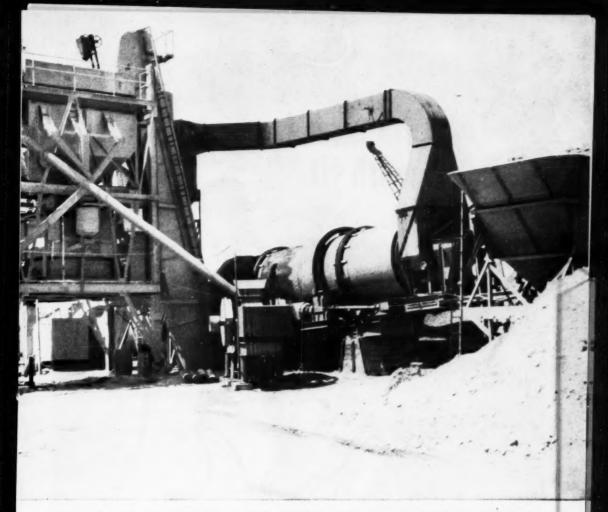


Laft, is the Model E plant operating at McAllen, Texas, in the Rio Grande Valley about 150 miles south of Carpus Christi. The plant is producing hat mix for a paving program for the City of McAllen. This is the sixth location this very portable Above is Heldenfels Brothers' Cedaropids 4000-lb, Model E set up for a job at Corpus Christi, Texas. This rear view of the plant shows the 83" Cedarapids Drier which Mr. Heldenfels likes for its high drying enpucity.



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HELDENFELS BROTHERS ARE SOLD ON CEDARAPIDS FEATURES

ONE of the Cedarapids features F. W. Heldenfels, Jr., particularly appreciates in this Model E Bituminous Mixing Plant is the 88" Drier and its high drying capacity which is frequently required in this area of Texas. The first job the plant went on used oyster shell aggregate containing 15% moisture! Another well-liked feature is the easy portability of this plant. A power raising unit handles the heavy work of erecting and dismantling, and the separate, related units meet all legal limitations for highway travel. Heldenfels Brothers have found Model E portability a real asset in the past two years, when their six different jobs were located in widely separated areas. Now, at the beginning of their third year of operation with their Model E, they have 87,000 more tons under contract involving three different jobs

Portability is not the only feature that pays off with the

Model E. The big capacity, ranging up to two tons at a batch, the fast, fully automatic controls, and the trouble-free operation of the plant have kept Heldenfels Brothers running consistently ahead of schedule on every job. These and other features of Cedarapids Model E Bituminous Mixing Plants are the reasons why F. W. Heldenfels, Jr., says, "I'm very well satisfied with my selection of Cedarapids, and if I had it to do all over again, especially in view of my experience with this plant, I would make the same decision to buy Cedarapids".

It will be to your advantage to find out what Cedarapids equipment... both Bituminous Mixing Plants and Crushing and Screening Plants... can do for your operations. Your Cedarapids distributor will gladly explain every feature, and help you select the exact Cedarapids Plant most efficient for your job.

IOWA MANUFACTURING COMPANY Cedar Rapids, Iowa, U.S.A. Accurate threads for smooth fit



Bethlehem supplies every type of Fastener

This A-W Grader Sure Handles Oil Mix FAST! "I take off my hat to All-Wheel Drive and All-Wheel Steer." Whenever you see an Austin-Western Power Grader with its rear end off-set like this, you can be sure that it is moving more material farther and doing the job faster than an ordinary motor grader could do it. We call it "CONTROLLED TRACTION." Here's how it works: All wheels miss the windrow. The rear drivers push behind the toe of CONTROLLED TRACTION puts the rear the blade; the front drivers pull ahead end of the machine where it will most of the heel of the blade, and the grader effectively resist the side-thrust of the moves straight ahead with a load along load on the blade . . . saves time and the entire blade that would cause an money on a wide variety of grading and ditching jobs. Only Austin - Western ordinary motor grader to become unmanageable. has CONTROLLED TRACTION ... because only Austin-Western has All-Wheel PRECISION SIDESHIFT moves the Drive and All-Wheel Steer. blade in or out, as desired, while the grader is in motion. Ample throat room between top of blade and bottom On the ordinary motor grader, the of circle makes it possible to move a operator has two alternatives; split the

AUSTIN-WESTERN COMPANY · Subsidiary of Baldwin-Lima-Hamilton Corporation · AURORA, ILLINOIS, U.S. A.

windrow and move less material, or straddle the windrow and not move it

the full distance. Each of these procedures slows down the job.

tremendous windrow without interfer-

ence. The lay-down is handled with the precision that satisfies the most critical

engineer.

Know Your Oil Seal Installation

TO BE EFFECTIVE, oil seals must be installed properly. And while this is not hard to do, many of the spring-loaded units are made worthless by careless insertionthe sealing lips are damaged by forcing them over a rough shaft, or the seal cases are distorted by hammering them into place. Oil leaks are the result. So here's how to do the job right, as recommended by the Allis-Chalmers Reporter.

Before installing new seals, remove any excess shaft end play or eccentricity. The seal's life and effectiveness largely depends upon this adjustment. Also, with fine abrasive cloth, polish the shaft smooth at the seal to lengthen service. Take as much weight as possible off the shaft if it has to be installed through a seal already in place. Otherwise, the seal is likely to be damaged in the process.

The direction of the seal on the shaft is determined by its function. Where the housing contains lubricant that must not leak out, the seal lip should face the lubricant. Where the seal's purpose is to permit explusion of matter, the lip should face away from the housing.

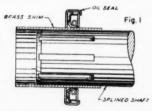
Before installing, always dip the seal in oil or coat it with grease. This will make assembly easier and prevent damage when the ma-

chine is started.

Some leather lip type oil seals are wax impregnated for storage and handling purposes. The wax hardens with age, sometimes so much that the lip will not follow the shaft contour. It may even cut into the metal. In either case, leakage occurs, as well as possible damage to the seal surface. So these wax impregnated leather lips must be softened before installing. Soak the seal in gasoline for about 24 hr to dissolve the wax. Then dip the seal in good lubricating or neatsfoot oil and it is ready for

Some seals have a synthetic rubber lip instead of a leather one. These are generally packed for both storage and use with a waxlike lubricant on the sealing lip. Be sure that this lubricant is not removed during handling, and follow the specific instructions furnished with each seal. It is not necessary to lubricate these synthetic seals again when they are

When installing a seal, do not allow it to become cocked. The best way to put one on is with a press, using a driver properly made to apply the pressure uniformly to the outer part of the seal's steel case. If the seal must be driven on manually, be careful to distribute



the driving force evenly around its edge. Too often seals are driven with a hammer only and, by the time it is in place, the seal has been distorted to a point where it cannot function properly.

Special care must be taken when putting seals on different types of shafts, For a splined shaft (Fig. 1). (Continued on page 177)



START IN ERECTION GIVES TO CONSTRUCTION!

ROOSHORS THE ONE-MAN SHORE

- No pins to cause delays—no time-consuming screw adjustments to become clogged.
- Instantly adjustable every fraction of an
- Wooden upper member permits easy bracing.

Rooshors help you speed progress schedules because they are truly a time-saving shore. Only one man is needed to transport, set, release or remove them to new locations. They are instantly adjustable within their three ranges of sizes: 8 ft. to 14 ft., 7 ft. to 13 ft., and 5 ft. to 9 ft.—higher stories are easily shored with Roos Extension Shores.

ROOS COLUMN CLAMPS SAVE TIME, TOO!

Roos Column Clamps, consisting of two identical hinged units, eliminate lost time and motion in fitting and adjusting . . . there is no wrong way to put them on. They have no loose parts to cause needless delays and a hammer is the only tool needed.

Rooshors and Roos Column Clamps are available for rental from warehouse stocks in principal cities from coast to coast. Write today for Bulletin 152





BAKER-ROOS, INC.

602 W. McCARTY STREET INDIANAPOLIS 6, INDIANA



and speeds to meet every shop and field requirement. YOU NAME IT, THOR HAS IT

principal cities. Free 1952 catalog upon request. Independent Pneumatic Tool Company, Aurora, III.











CRUCIBLE

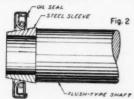
first name in special purpose steels

52 years of Fine steelmaking HOLLOW DRILL RODS

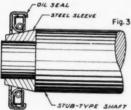
CRUCIBLE STEEL COMPANY OF AMERICA. GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA.
REX HIGH SPEED TOOL REZISTAL STAINLESS ALLOY MACHINERY SPECIAL PURPOSE STEELS

OIL SEALS . . . Cont. from p. 174

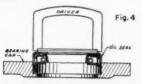
a piece of brass shim stock can be a big help in sliding the seal undamaged over the end. Make sure that the edges of the skim stock overlap in proper cylindrical form, and that it has no rough spots to damage the sealing lip. This method works equally well for keywayed and notched shafts.



For a flush-type shaft (Fig. 2), protect the sealing lip with a steel sleeve fitting up against, and very slightly over, the shaft. Take care not to stretch the sealing member beyond its working diameter. And polish the sleeve surface to prevent damage to the seal's lip.



For a stub-type shaft (Fig. 3), make a steel sleeve to fit over the stub and up against the shaft face. Its largest diameter should be the same as the shaft's, or only very slightly larger. Again, do not stretch the seal, and be sure to polish the sleeve. Both this sleeve and the previous one can be made locally at small cost to fit any size shaft.



To put a seal in a bearing cap (Fig. 4), make a driver, as shown. For occasional installations, the old seal or a flat plate larger than the seal may be used. In either case, by first applying white lead to the bore of the bearing cap, a tighter seal will be obtained.

Generally speaking, springloaded seals will retain oil if properly installed.





On-the-Job CONTRACTOR-LABOR RELATIONS

by LEON B. KROMER, JR.

Get It in Writing!

IT'S HELPFUL to call or visit your local Wage-Hour Office for explanation and advice on stabilization problems affecting your administrative or non-manual employees, but never rely on their verbal say so when it comes to making pay increases. One employer recently learned that the hard way when the Wage Stabilization Board's National Enforcement Commission disallowed for income tax purposes more than \$5,700 in wage payments that eventually were held illegal.

It started with a case before the Regional Enforcement Commission

at Cleveland last February, in which it was ruled that an employer, acting on the verbal advice of a local Wage-Hour Office employee, had paid more than the 10% ceiling increase allowed under Regulation 6. The Regional Commission dismissed the case on the basis of extenuating circumstances. The WSB Regional Counsel appealed to the National Enforcement Commission, however, and the latter reversed the Regional Commission.

What to do: Get all the oral explanations you need and then file form WS-1, used to obtain a specific ruling as to whether a proposed wage adjustment you want to make needs prior Board approval. Your local Wage-Hour Office has these forms to send you.

Be sure to wait for a written answer. There will be some waiting but if you want to be protected from possible violation of wage controls it is best to wait. And remember, if the answer is "Yes" you do need Board approval. You must then file form WS-100 to ask that approval.

All the above applies to nonmanual employees. If you have any questions as to what to pay laborers and mechanics working at the site of construction, or any socalled "fringe" benefits for such employees write directly to the Construction Industry Stabilization Commission, Department of Labor Buildings, Washington 25, D. C., for the answers. Wage-Hour Offices have no authority to interpret regulations concerning laborers and mechanics on construction.

THE SPEEDPIN CONNECTION Makes the Big Difference! SPEEDS UP your work **CUTS DOWN** your costs

New SPEEDPIN Scaffold Fits Every Job

Here's the newest, safest, most efficient scaffold on the market today. The Hagan Speedpin Tubular Steel Scaffold goes up fast . . . is easy to erect . . . cuts job costs because of its simple basic design, unusual flexibility, and great strength. With all-welded construction throughout, it has no loseable parts, chains or pins. And with no stems or plates that might become bent, you have easier, neater storage and stacking in the shop, on the truck, or at the job site.

The new Hagan Scaffold includes all the advantages and features suggested by construction and maintenance men in the field . . . so, naturally, it's your best bet for speed, safety, simplicity, and economy. Write us today for descriptive literature and name of nearest dealer. (Dealerships are open, incidentally, in a few selected territories.) Your note or letter will bring a prompt reply.

HAGAN TUBULAR PRODUCTS

P. O. BOX 2272

YOUNGSTOWN 4, OHIO

Minors

With schools closed for the summer, many contractors will be besieged by teen-agers looking for vacation jobs. Before hiring any, be sure to check your state child labor law and the child labor provisions of the Fair Labor Standards Act (Federal Wage-Hour Law). Your applicant may be man-sized, but he's still a child if below the legal age limit and violation can be costly!

Most states have child labor laws that specifically apply to your con-(Continued on page 180)

TWO LPC TS 300 MOTOR SCRAPERS WORKED 4000 HOURS EACH ...



That's really low-cost earthmoving for CONCRETE MATERIALS & CONSTRUCTION CO.

FROM March 1 to December 24, 1951, Concrete Materials & Construction Co. operated their LaPlant-Choate TS 300s two 10-hour shifts, six days a week, stripping 120-ft. of overburden on a job near Cedar Rapids. In 4000 machine hours, total repairs for each rig amounted to only 50¢ per hour, and that included tires!

To get ready for the new season, engines were completely overhauled and the only repairs found necessary were new rings and bearings. After 4000 hours, the cylinders showed only .002 of an inch wear!

It's no wonder Concrete Materials is sold on Motor Scraper performance. On top of such low maintenance, their TS 300s give them the kind of power that easily handled materials varying from sandy loam to heavy blue clay in a pit loaded with springs, making the going plenty muddy.

TWO YEARS' WORK IN ONE!

BY working their TS 300 Motor Scrapers two ten-hour shifts a day, with such little time out for maintenance or repair, Concrete Materials & Construction Co. completed two years' work in one. This was a job where the Motor Scraper's ability to keep punching, with little time out for tinkering, roelly paid off. Minimum maintenance is just another reason why it will pay you to follow the lead of so many big-time contractors who cut earthmoving costs with LaPlant-Choate Motor Scrapers. See your LaPlant-Choate distributor today for complete details about all Motor Scraper advantages.





CHOATE

CEDAR RAPIDS, IOWA, U.S.A.



Cable-operated Scrapers in 6-, 8- and 14yd. sizes for all makes of track-type



2- and 4-yd. Scrapers for track-type and rephantical industrial tractors.



Hydraulic and Cable-operated Desert.



LABOR . . . Cont. from page 178

struction operations. Child labor provisions of the Wage-Hour Law definitely apply to your job if it is related to interstate commerce, the production of goods for commerce (see page 120, CM&E, March 1952) or if it is a federal construction project. Jobs in these categories are covered by both federal and state laws and, to protect yourself, you must follow whichever one is stricter.

Before employing minors, that is, anyone under 18 years old, you can insist that they furnish either a U.S. Department of Labor age certificate or an equivalent document issued by the state. This is your best protection against possible violation.

State certificates may be called age or employment certificates, work permits or working papers. The name is not the same in all states. Such certificates are generally issued by either the state's labor or education departments.

Minimum Ages

Under the federal law, for example, 16 years is the minimum age at which anyone can be employed on construction, demolition and repair at the construction site. This does not, however, cover office work where 14 years is the minimum age, and certain operations on a construction job which have been declared hazardous by the Secretary of Labor where 18 years is the minimum employment age.

This work includes operating an elevator, crane, derrick, hoist or high-lift truck, or assisting in the operation of cranes, derricks, hoists, rigging and similar activities.

The penalties are tough whether the violations are under state or federal law. The federal law provides a fine of \$10,000 or six months in prison, or both. Also, the Secretary of Labor can seek a permanent injunction against future violations. Penalties under state laws vary, but the employer pays!

In addition to fines and imprisonment or both, some state laws stipulate penalty payments by employers for injury to illegally employed minors over and above what they can obtain under workmen's compensation.

Do You Know That:

During the last fiscal year NLRB ordered payment of back wages amounting to more than \$2,200,(Continued on page 184)

DISTRIBUTORS

Prefermed * Round Strand * Locked Coil

schen & Sons Rope Co., St. Louis 12, Missouri.

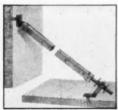
3 NEW SUPERIOR ACCESSORIES for more efficient handling of...



"PICK-UP" INSERT with two 1" coil bolts, will safely lift a load of 11,000 lbs. when embedded in 3,000 lb. concrete slabs.



"ANCHOR" INSERT in both the "Tilt-Up" slab and the floor slab provides anchorage for slab brace bolts.



SLAB BRACE for temporary anchorage is quickly installed and adjusted. Has exclusive pivoting action.



Are you bidding on a "Tilt-Up Slab" job? Are you starting a "Tilt-Up Slab" Job? Then you will be interested in Superior's three new accessories, designed for faster and more efficient handling of precast panels.

The Superior "Pick-Up" Insert provides dependable anchorage for bolts to which slings are attached when the panel is raised. "Anchor" Inserts in both the "Tilt-Up" slab and the floor slab secure the temporary bolts to which the braces are attached. With Superior's adjustable and pivoting Brace you have an efficient as well as inexpensive answer to both ordinary and unusual bracing problems . . . you merely assemble with 2 x 4's of lengths to fit individual jobs.

Leading contractors on the Pacific Coast and in the Midwest already are users of these new specially designed inserts and braces.

For details write today for Superior's Bulletin "T U-1".

SUPERIOR CONCRETE ACCESSORIES, INC.

4110 Wrightwood Avenue, Chicago 39, Illinois

New York Office 1775 Broadway, New York 19, N. Y. Pacific Coast Plant
2100 Williams St., San Leandro, Calif.

SNAPPY swing SNAPPY swing QUICK control EASY operation FINE balance

add up to accurate spotting of buckets with a BAY CITY

Whether you are loading bins and trucks or dumping on a spoil bank, the balanced design and easy flow of power of a BAY CITY will speed your materials handling and excavating operations , , , increase your profit possibilities.



With shovel, dragline or clamshell, the snappy swing, quick control, easy operation and fine balance of a BAY CITY make it easy to spot the bucket accurately and speed the digging cycle. No single factor makes the BAY CITY so long-wearing . . . so long lasting. It is a combination of heavy-duty design, construction and operating features which have made so many BAY CITY owners repeat buyers for up to 35 years. See your BAY CITY dealer for the full story or write today for catalog.

BAY CITY SHOVELS, INC.



CHECK THESE FEATURES

- √ Fully Convertible
- √ Power Booster Clutches
- √ Long, Wide Crawlers
- √ High Line Speeds
- √ Alloy Cast Bases
- √ Wide Vision Cab
- √ Tandem Drums
- V Pin-Connected Boom

209 Power booster clutches—single adjustment





BAY CITY



SHOVELS . CRANES . HOES . DRAGLINES . CLAMSHELLS



THE BUYWORD FOR DEPENDABLE IGNITION



AMERICAN BOSCH MAGNETOS



American Bosch Super Powered Magnetos give engines the constant, faultless spark that assures fast starts and prevents costly ignition tie-ups in construction equipment. Add to these day-today, on-the-job advantages, more years of trouble-free ignition in the toughest construction service, and you'll appreciate why these power-packed Magnetos are in wide use as original equipment by many leading engine builders.

You can enjoy this persistent performance and economy of operation on your present equipment. For, there's an American Bosch Magneto precisely engineered for all replacement needs . . . for the largest, heavy-duty engines, right down to the Magnetos required for the most modern, high-speed power units.

Moreover, there's a generous trade-in allowance for you on the old magneto you replace. Make American Bosch Magnetos your "buyword" for dependable ignition. Write for new 92-page catalog, including application data. American Bosch Corporation, Springfield 7, Mass.

RICAN BOS





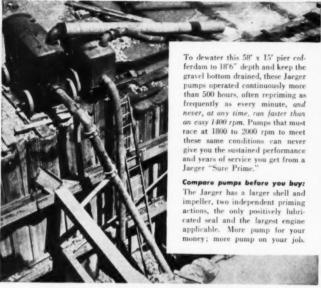








a JAEGER never races to prime



See your Jaeger distributor or send for Catalog P-10

THE JAEGER MACHINE COMPANY 800 Dublin Avenue Columbus 16, Ohio

TOWERS

PAVING MACHINERY



A COMPLETE LINE FROM ONE SOURCE TO MEET ANY REQUIREMENTS



Exclusive with Servicised. Lowest cost non-extruding joint filler. 80% recovery after compression. Low mois-ture absorption. Readily handled without breakage.



SELF-EXPANDING CORK For positive joint filling. Specially treated to expand 50% beyond original thickness

after compression to keep joint filled under contraction which opens space to more than original size.



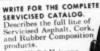
ASPHALT

Forms an easily compressible cushion. Highly waterproof, low in cost. Made in 5 thicknesses in any length or width. nesses in any length or with.
Formed between two sheets
of asphalt saturated felt
paper which increases
strength and rigidity, improves handling



SPONGE RUBBER CEMENTONE Blends with color of con-crete. For use in architec-tural concrete structures such as bridges, viaducts, etc., where black color of ordinary fillers would be objectionable. Fully resilient

High recovery factor (95%) after compression, non-extruding qualities and light color make Cork Joint Filler ideal for use in flood walls. outlet works and spillways. sewage treatment plants, filtration plants and bridge construction.







-non-extruding.



SERVICISED PRODUCTS CORP. CHICAGO 38, ILLINOIS

LABOR . . . Continued from p. 180

000 to more than 7,000 employees because of illegal preferential hiring practices or illegal discharge? For future guidance, just remember that some of that money came out of the pockets of contractors.

The Salary Stabilization Board now requires that all petitions for salary increases (executive, supervisory and professional employees) must be filed on form OSS-300? SSB reports that many employers are not using the form and, by failing to furnish many required facts. are consequently delaying action on their cases.

CISC will restudy the wage structure of laborers and mechanics as it applies to homebuilders? This is the result of a recent conference of NAHB officials and Wage Stabilization Board members. Home builders have long protested the many problems they face on wages and fringe benefits under CISC regulations. Many, because of special conditions of employment, are apparently in violation of stabilization regulations.

IF YOU HAVE any problems you would like to see discussed in these pages on labor contract negotiation, stabilization and the like, let us have them. We do not promise any pat answers but will do our best to outline some do's and don'ts to fit the case.

Install Blades Properly

ALTHOUGH THIS IS OLD STUFF to experienced earthmovers, many operators and mechanics can benefit from a little advice on blades. according to the LeTourneau people.

Blades are the working edges of scrapers and dozers and will do their best when installed with cutting edges in the proper direction. It is possible to get them reversed, and create rapid wear upon a surface which has not been hardfaced for cutting purposes.

Different types of blades are available for some models, and the maintenance man must get proper information on what type of work is to be done before he can install the cutting edge designed for the purpose. Some blades can be reversed after wear. but it must be done according to the manufacturers' directions.

AT THE TURN OF THE CENTURY



This truck moved over rugged roads and streats, carrying very limited payloads. It was one of the forerunners of the huge, present trucking industry — an industry that now carries 73% of ALL general freight. At the end of Werld War I, trucking was an important, expanding industry, with a mounting demand for increased payloads.

Can you name it?

PERFECTION

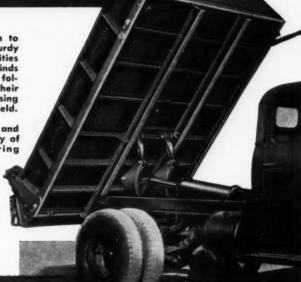
HELPED PIONEER AND EXPAND AN INDUSTRY

34 years ago PERFECTION began to design and build a variety of sturdy bodies and hoist units with capacities for hauling and dumping many kinds of materials. In the years that followed, PERFECTION established their leadership in meeting the increasing special purpose needs of this field.

Back of PERFECTION 1952 Bodies and Hoists is over a third of a century of engineering and manufacturing experience.

Photo shows a PERFECTION Heavy - Duty Asphalt Dump Body with No. 825 Heavy-Duty Hoist. Body is 4½-yard capacity, double shell construction with ½" thick asbestos liner.

For literature write Dept. M-72.



PERFECTION TRUCK BODIES and HYDRAULIC HOISTS

FOR ANY TRUCK

Engineered, Manufactured, and Guaranteed by

Galion, Ohio, U. S. A.



"We Have HOPKINS UNITS On All 4 Asphalt Plants,

Have Had Excellent Results With Them!



Does your plant need an efficient, low-cost burning system? Let Kelley & Meyer give you the buy-word: This company converted its first three plants to Hopkins from high-pressure to low-pressure equipment. The result: Says Mr. R. P. Shorts, President—"It's proven more economical . . . has given us good performance. The service is good and we've had no trouble at all mechanically." When the company

added a fourth plant (on New Jersey Turnpike) "we installed the Hopkins unit instead of the mechanical-type burner offered as original equipment with the new plant."

Here's added proof that Hopkins is your best bet for increased production, greater efficiency, and lower fuel cost. Complete details and descriptive literature are yours for the asking. Just phone, wire, or drop us a line today.

HOPKINS VOLCANIC SPECIALTIES, INC.



Don't move drifts...

Toss 'Em Aside!



From the Roadside!

Your job is only half-done when snow has been pushed off the road. Strong winter winds keep snow drifting back onto the road . . . deep snow-canyons make travel dangerous and difficult.

But not with the Domor Snow Blower!

This modern tool throws plowed ice and snow far off the shoulder. Winds can't blow hard enough to drift piles back onto the road. Shoulder snow is shallow and travel safe. Snow removal and control is speeded — made more efficient by the Domor Snow Blower!

Add this work-proved Domor attachment to your "Caterpillar" Motor Graders equipped for snow removal. Ask your Domor. "Caterpillar" Dealer for full details—or write direct.

Ulrich Products Corporation, Roanoke, Illinois



The economical addition to a plow and wing equipped "Cat" Motor Grader reaches beyond the shoulder and blows out snow lying at the ditch line. Here a No. 12 of Carver County (Minn.) equipped with a Domor Snow Blower eliminates blow snow at the roadside

ULRICH PRODUCTS CORPORATION

ROANOKE, ILLINOIS



with MALSBARY STEAM CLEANER!

When Conyes Construction Co., decided to put equipment back into first-class working shape after 18 months of pipelaying, they chose a MALSBARY 300 heavy-duty cleaner to remove the accumulated dirt, mud and grease. MALSBARY extra-high pressure (400 lbs.) on cold water and hot solution (325°F.) blasted away 18 months' grime, left these two shovels whistle-clean in less than 4 hours . . . D8's shone like new in 2 hours; large trenchers in 4 to 5 hours.

Said Conyes Eqpt. Supt., "I consider the 300 MALSBARY the best steam cleaning unit I have seen in 25 years of maintaining construction equipment."

Speed Cleaning, Cut Repair Costs

Like Conyes, you can quickly remove corrosive, abrasive grime; reveal badly worn spots; make mechanics' work easier...by using MALSBARY cleaners. With MALSBARY patented pumping system you get:

Extra-High Pressure—Up to 400 lbs.! Two to 4 times greater than steam vapor cleaners. Lets you knock off stubborn dirt others can't touch . . . cleans hard-to-reach spots.

5 Distinct Cleaning Actions. High pressure steam cleaning (to 325° F.); high pressure hot water; high pressure cold water; low pressure wet steam; and low pressure warm water.

Ask for On-Job Demonstration. Fill in Coupon; Mail Today.

3 heavy-duty models — 250, 300, 500. Oil or gas fired; gas engine or electric drive; stationary, portable or trailer mount. All develop hot solution in 2 to 3 minutes.



31, Room C7 , 845 92nd Ave., Oakland 3, Calif.

| Maisbary Mfg. Co., Room C7 , 845 92nd Ave., Oakland 3, Calif.
| I AM INTERESTED IN —
| On-the-job demonstration.
| Free booklets on MALSBARY Cleaners.

"How To Make Efficient Use of Steam Cleaning" reprint.

NAME POSITION

BUSINESS
ADDRESS

* SERVICE *

News of manufacturers' activities designed to assist the reader in the purchase of machinery, equipment and materials and help him obtain quick service on parts and maintenance.

Distributor Appointments

Nordberg Manufacturing Co.: Appoints Olson Equipment Co., 2930 Blaisdell Ave., Minneapolis, Minn., distributor for Nordberg 4FS diesel engines in Minnesota and northwestern Wisconsin.

Goulds Pumps, Inc.: Monogram Electric Products Co., 401 Broadway, New York City, will handle Goulds water systems and industrial pumps in the Greater New York area and in Hudson and Essex Counties in New Jersey.

New York Belting and Packing Co.: Names Rocky Mountain Machinery Co., Salt Lake City, distributor for Utah and southeastern Idaho for its belting hose, packing and similar industrial rubber products.

D. W. Onan & Sons, Inc.: Appoints three distributors. A. F. Shane Co., 440 S. Evaline St., Pittsburgh, will cover western Pennsylvania. In St. Louis, Mo., the Koochook Co., Inc., will cover eastern Missouri and southern Illinois. Motor Mercantile Co., Salt Lake City, will cover Utah and eastern Idaho.

Joy Manufacturing Co.: McNall Machinery & Supply Corp., 600 D Ave., Northwest, Cedar Rapids, Iowa, will handle the Joy line of pneumatic tools and compressors in a major portion of Iowa and part of Illinois.

Cleaver-Brooks Co.: Mason Equipment Co., 2281 Wildwood Blvd., Toledo, Ohio, will handle C-B boiler equipment in nine counties in northwestern Ohio.

On the Sales Front

Euclid Road Machinery Co.: Names Everett F. Armington vice-president in charge of sales, as well as company secretary.

Schield Bantam Co.: A. Frank Landolt becomes district sales manager for California, Utah, Nevada, Arizona, New Mexico, Colorado and sections of Wyoming and Texas with headquarters in San Francisco.

Cummins Engine Co., Inc., W. B. Lawrence has been elected a vicepresident of the Cummins Diesel Sales Corp.; will continue as general manager.

(Continued on page 191)

Three Answers to Your

DEMOLITION PROBLEMS

There's an I-R PAVING BREAKER

that's right for every job...
right in weight
right in power
right in cost

PB-8 82 lb. Length, 2834"

This is a real heavy-duty breaker that packs plenty of power for the toughest kind of work-on reinforced concrete or any extra-hard pavement construction. Three interchangeable front heads permit the PB-8 to be quickly converted from a paving breaker to a pile driver or spike driver.

PB-6 58 lb. Longth, 26" This is also a heavy-duty machine, but its lighter weight speeds up the work and reduces operator fatigue on less strenching in hard clay or shale, and horizontal demolition work on brick and concrete walls.

L-54 38 lb. Length, 221/2"

Here's a compact, hard-hitting machine with the right combination of weight and power for a wide range of light-duty demolition jobs. It's a big saver of time and effort, especially on scaffolding work where easy handling is so important.

Your nearest Ingersoll-Rand representative will be glad to tell you all about the construction features and cost-saving advantages of these I-R Paving Breakers.



Ingersoll-Rand

ROCK DRILLS . COMPRESSORS . AIR TOOLS . CENTRIFUGAL PUMPS . TURBO BLOWERS . CONDENSERS . DIESEL AND GAS ENGINES



When Darin & Armstrong, Inc., general contractors, wanted "dry digging" insurance on a highly important defense plant construction job, they chose multiple units of Marlow Mud Hog Pumps, supplied by Michigan Tractor and Machinery Co. of Detroit as distributors.

"We use Marlow Pumps," says Mr. Duncan Cain, Equipment Superintendent of Darin & Armstrong, "because we have found them extremely satisfactory for our type of work."

Construction men all over America and all over the world know the simple,

rugged and trouble-free construction of Marlow Mud Hogs. These famous time-tested pumps will handle mud, sand, slime and solids in suspension with ease and speed, sucking up muck almost thick enough to shovel.

The Mud Hog's patented ball valves are virtually clogproof. All liquids pass *under* the diaphragm to avoid unnecessary wear and cutting hazards.

When messy digging confronts you, Marlow Mud Hogs will work fast and dependably to make the job easier. Write for new free bulletin No. C-52.

MARLOW PUMPS

RIDGEWOOD, NEW JERSEY

Manufacturers of the World's Largest Line of Contractors' Pumps Including the Famous Marlow Mud Hogs

SALES AND SERVICE . . . Continued from page 188

Ladish Co.: Richard M. Bode is appointed to an executive sales position to market a new line of forged steel valves.

Harry Ferguson, Inc.: Curry W. Stoup, general sales manager, also becomes a vice-president.

Gar Wood Industries: James E. Edelbrock appointed manager of the Chicago factory branch.

St. Paul Hydraulie Hoist (Gar Wood Industries): Leo M. Brown becomes assistant sales manager. Edward R. Curry is appointed South Central district manager.

Quaker Rubber Corp.: W. W. Hutchinson will supervise a new branch warehouse and sales office at Lockland, Cincinnati, Ohio. Another new stock-carrying warehouse and sales office in Dallas, Tex., will be in charge of D. C. Hahn, district manager.

Pettibone Mulliken Corp.: K. Ray Merrick becomes district manager covering Michigan, Indiana, Illinois, Missouri, Kansas and a portion of Arkansas. Arnold C. Lee is district manager of the newly created territory of Washington, Montana, a portion of Idaho, Alaska and British Co-(Continued on page 196)



wire rope
INVESTMENT!
MADESCO
MAKES GOOD BLOCKS



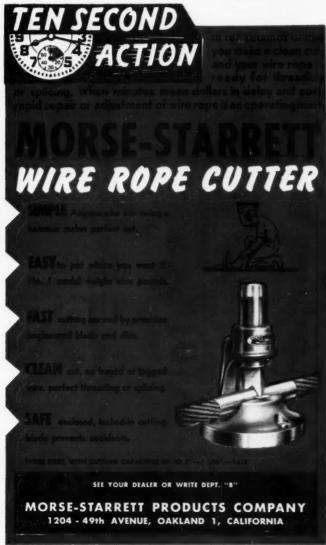
The anti-friction bearings and bronze bushings in Madesco sheaves and blocks, combined with our quality workman, ship, assure smooth performance . . long life for your wire rope.

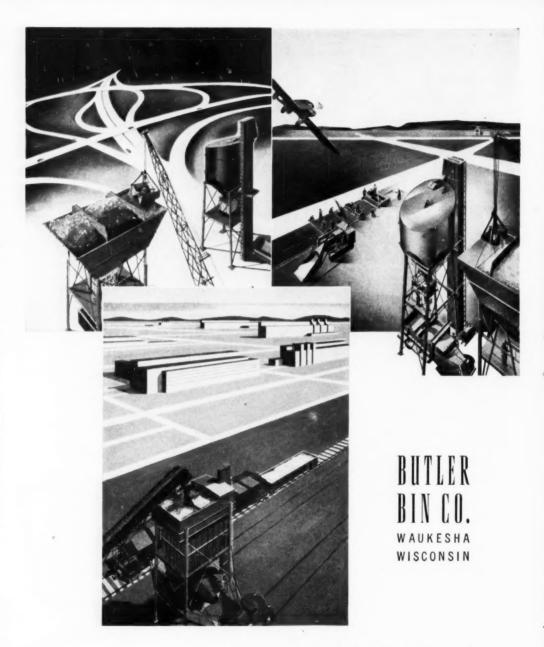
Madesco products can be designed for every purpose.

Write for complete information today.

MADESCO TACKLE BLOCK COMPANY EASTON, PENNSYLVANIA

Over a quarter century of service





New production records for the world's largest construction projects are today attained through important engineering advances in automatic operation offered by BUTLER equipment.

A low-cost Texaco surface for a Black Hills highway



Texaco Slow-curing Asphaltic Oil and aggregate were mixed by travel plant in surfacing of this 10-mile section of South Dakota's Route 24 in the Black Hills area. Work done by the Northwestern Engineering Company, Rapid City, S.D.

The South Dakota Highway Department needed an intermediate-type of construction for 10 miles of State Route 24 in the Black Hills region. A travel plant and Texaco liquid asphaltic materials teamed up to give the State what it wanted—a serviceable, all-weather road at moderate cost.

A dense-graded aggregate was picked up by the travel plant from a windrow and mixed thoroughly with

a Texaco Slow-curing Asphaltic Oil. The mix was spread evenly over the base and compacted, providing a tough, waterproof surface two inches thick. Texaco Rapid-curing Cutback Asphalts were used to prime the base and to seal the new surface.

This South Dakota project is another ex-

ample of the variety of ways in which Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils are successfully employed in the construction of roads, streets and airports. There are two reasons why your Texaco Asphalt pavement will stand up under whatever traffic and climatic conditions it is called upon to serve: (1) The experience of almost half-a-century goes into the refining of Texaco Asphalt products; (2)

Every Texaco Asphalt material is a product of scientifically selected crudes.

Two helpful booklets covering all types of Asphalt road and street construction can be had without cost or obligation by writing our nearest office.



P&H TRUCK CRANES STABILITY pays off on jobs like these Whether you're lifting or swinging peak loads, P&H Truck Cranes give you that extra stability that means extra capacity - extra safety - extra profit. And this means all around the full 360 degrees of operation the basis upon which no P&H Truck Crane, size for size, has ever been outlifted. With P&H Hydraulic Control you have the fast, smooth, responsive action which lets you "feel" the load for swifter, more precise handling. Dual power, for travel and work, gives you the best all-around performance in the truck crane field. You can prove it. Available also with remote control. See your P&H dealer. HISCHFEGER CRPORATION NATIONAL AVE. . MILWAUKEE 14, WIS.

> P&H Power Shovels and Truck Cranes are more easily converted for various types of service because hoist and digging drums are on one shaft. The need for auxiliary shafts and gearing is eliminated. Write for literature on the size you need. Sizes up to 8 cu. yds., gasoline, diesel or electric power.

NOW! Do your construction fastening up to 100 times faster with

NEW
CARTRIDGE-POWERED
MODEL 450

REMINGTON STUD DRIVER

. and do it safely!

This revolutionary tool attaches steel or wood structural pieces to concrete or steel surfaces in seconds... cuts costs and working time on construction jobs. Completely self-powered, the Stud Driver sets as high as 5 studs per minute... with no outside power source or other equipment required. Studs have pull-out resistance as high as two tons!

Test-proved to be the world's

finest and speediest fastening system, the Model 450 Remington Stud Driver is made by Remington Arms Company, Inc., America's oldest and foremost sporting arms manufacturer. Price for Model 450, complete in rugged steel carrying case—only \$119.50. To obtain detailed information on this time and money-saving tool, and for the name of your nearest distributor, fill out and mail the coupon below.

Speeds all these jobs . . . and many more!

- 1. Fastening wood sleepers to concrete or steel,
- 2. Hanging steel sash and door bucks to concrete.
- 3. Anchoring stadium and theatre seats to concrete.
- Fastening wood furring strips to concrete walls and cellings for attachment of metal lath.
- 5. Anchoring wood plates to concrete slabs.
- 6. Hanging radiator housings to steel or concrete.

"If It's Remington-It's Right!"

Remington



Simply hand-assemble stud and power cartridge, load as a unit in easy-to-open Remington Stud Driver, and close.



Press loaded Stud Driver firmly against surface, depress safety lever and pull trigger. Explosive charge im-

Remir	ngton Arms Company, Inc.
Indust	trial Sales Division, Dept. CM-7
939 B	arnum Ave., Bridgeport 2, Connecticut
	n interested in obtaining detailed information on the 450 Remington Stud Driver.
Name.	
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Positio	on
Addre	88



This is just one of the many superior features of JACK-MANCO Barrows and one of the reasons why Contractors buy more JACKMANCO Barrows than any other make.

JACKSON

MANUFACTURING CO. HARRISBURG · PENNSYLVANIA



WISCONSIN-POWERED Ingersoll-Rand Compressor

Wheeling a modern, mobile compressor to any spot it's needed is easy when it's an Ingersall-Rand. Then doing a day's work on location is also a "sure thing" if a Wisconsin Heavy-Duty Air-Cooled Engine supplies the power.

Heary-Duty Air-Cooled Engine supplies the power.

The search for full-roted power that's dependable ends almost always with Wisconsin Engines . . . first choice everywhere, 3 to 30 hp. For example, every Wisconsin Engine crankshaft rides at both ends on tapered roller bearings, reducing the chance of bearing failure. Also, Wisconsin Engine magnetos mount on the OUTSIDE for easy servicing, but most important each magneto is equipped with an impulse coupling for quick starts in any weather. Steady running is assured, too, because of fool-proof air-cooling, summer and winter. Follow the lead of many who say, "Wisconsin Engine Power fits the machine and job." And, write today for "Power Magic" covering all 4-cycle single-cylinder, 2-cylinder and V-type 4-cylinder models, 3 to 30 hp.



SALES AND SERVICE . . .

Continued from page 191

lumbia, Alberta and Saskatchewan in Canada. C. W. Stewart is in charge of a new district comprising the northern half of California, Nevada. Oregon and a portion of Idaho. Alex E. Ainlay will manage yet another new territory including Colorado, Wyoming, Utah, eastern Idaho and part of New Mexico.

Connors Steel Co.: William J. Califf, Jr., is named in charge of a new sales office opened in Atlanta, Ga. Willis C. Hagan will manage a new branch sales office in Memphis, Tenn.

Flexible Steel Lacing Co.: John P. Ramsey becomes sales manager.

American Hoist & Derrick Co.: John E. Carroll, vice-president of sales, is elected a director.

Lone Star Cement Corp.: R. J. Mahon is elected vice-president in charge of sales.

In the Main Office

Flexible Steel Lacing Co.: Hugh L. Coats steps down as sales manager after 38 years; will continue as a director and secretary.

Traylor Engineering and Manufacturing Co.: William J. Roberts, Sr., has been re-elected president for the 35th consecutive year.

Westinghouse Electric Corp.: J. C. Fink becomes engineering manager of industrial products.

Macwhyte Company: George C. Wilder moves up from vice-president and assistant general manager to become a director and the new president.

Cummins Engine Co., Inc., Harold H. Hall is now general manager of the Cummins Diesel Export Corp. Charles C. Sons is named acting general service manager.

Johnston Pump Co.: Thomas W. Simmons, Jr., has been elected president and general manager.

Vickers, Inc.: Harry F. Vickers, founder and president, becomes president of the Sperry Corp., the holding company. Kenneth R. Herman, vice-president and general manager, becomes a Sperry vice-president. Both men will continue in their present capacities at Vickers.

Harry Ferguson, Inc.: William M. Alexander, secretary, also becomes general counsel.

Thermoid Co.: Lester F. Cox has been elected executive vice-president and executive manager supervising all divisions.

F. Armington is elected chairman of (Continued on page 200)

ANOTHER PROBLEM SOLVED BY ALEMITE "FRICTION FIGHTERS"



on the

...ON THE JOB!

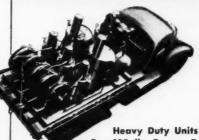
ALEMITE

portable service stations

Save Time! By bringing complete power lubrication to trucks, tractors, equipment-right on the job. Genuine Alemite air-operated pumps deliver grease "refinery clean" direct from barrel-to-bearing.

Save Money! By cutting the costly "downtime" required for lubrication . . . increasing the output of both men and machines . . . slashing operating costs.

Save Equipment! By reducing greatly the possibility of bearing failures. By keeping earthmoving rigs running smoother, longer-no matter how far afield they may be!



For 400 lb. Grease Drums

Designed to handle the biggest, toughest jobs - under the most severe operating conditions. These units feature burly, super efficient "POWERHOUSE" Pumps that deliver lubricant direct from original 400 lb. drums. End the need for frequent drum changing. Units consist of high and low pressure pumps, air compressor, reels and hose for pressure gun grease, gear oil and air.

Standard Duty Units For 100 lb. Grease Drums

Featuring the famous Alemite "Atomic" Pump, these units deliver lubricant direct from 100 lb. drums. Consist of pumps, up to five reels, delivery hose and air compressor. The matching steel bases can be fastened together with side rails . . . mounted on a small truck or trailer and quickly driven from place to place.



To fit your needs exactly! Yes, whatever selection of high pressure or gear-oil pumps and reels you require for 100 lb. drums, you can easily them into one portable rig for on-the-job lubrication!



Get this FREE book!

ing this equipment. Write to Alemite, Dept. p.72. 1850 Diversey Parkway, Chicago 14, III

ALEMITE

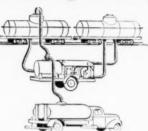
Only the Cleaver-Brooks "Deuce" gives you this DUAL-DUTY performance in one operation

Here's the answer to fast, low-cost heating of pumpable bituminous material—in one compact mobile unit, easily moved to location with one motor truck. Heats and transfers bitumen 4 times as fast through the direct oil-fired pumping booster.

In addition, you have a fast steaming, economically operating tank car heater. A combination unit that offers substantial savings as compared to purchase of two separate units.

Over 10 h.p. 125 lb. W.P. oil-fired, four-pass, horizontal fire tube boiler — ASME code constructed and so stamped, conforming to all State and Local Codes, equipped with condensate system mounted together with direct fired pumping booster on single sturdy frame — skid mounted or 2-wheel trailer mounted. Write for further information.

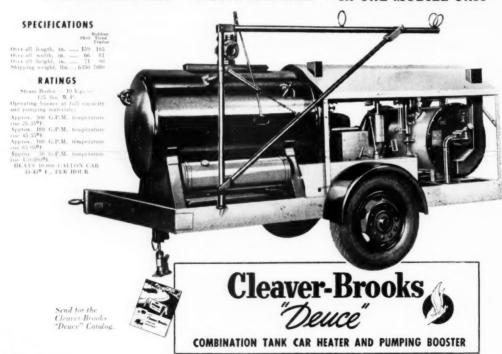
CLEAVER-BROOKS COMPANY, Dept. H. 398 E. Keefe Ave., Milwaukee 12. Wis.



- 1. Steam preheat to pumpable consistency
- 2. Circulate and Heat to application temperature
- 3. Pump and load distributor

Not one, not two, but three poles can be done with the Cleaver-Brooks. "Desure" a Combination Tank Car. Heater and Pumping Boosver, You can steam perheat one ear to pumpishly consistency while you are circulating and feating as second car to application temperatures. And, with this same unit you can then pump and load the distributor of transfer track.

* A Portable Steam Boiler * A Direct-Fired Heater * IN ONE MOBILE UNIT



BUILT BY THE PIONEERS AND ORIGINATORS OF TANK-CAR HEATERS...BITUMINOUS BOOSTERS



This modern machine is next to infallible—yet even so, the Bethlehem operator checks the reduction of his wire.

His attention to detail means better rope for you

Wire-drawing is a fundamental step in the making of Bethlehem rope, and it's done on machines that almost never make mistakes. Nevertheless, this operator, like others in the Bethlehem mill, runs frequent checks on the work going through. He wants to be sure that his part of the job meets the specified standards-which are very, very high.

This care, this attention to detail, is not confined merely to the drawing of wire. It begins with the making of the steel used in Bethlehem wire rope, and it carries through each and every step to the final inspection and reeling.

Care is a lot of little things which, taken together, mean a quality product. It is one of the reasons why you cannot buy a better rope than Bethlehem makes.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlebem Steel Export Corporation

When you think WIRE ROPE . . . think BETHLEHEM



FASTER DRILLING at Lower Cost!

MODEL 51 SELF-PROPELLED

HYDRAULIC COAL AND CLAY DRILL

4 features for easy operation and top performance

- Hydraulic Feed
- Fluid Motor for Auger Rotation
- Finger-tip Controlled
- One-man Operation

duty truck type with

four speeds forward

and one speed reverse.

The main frame is of

all welded I-beam con-

struction. The rear

end is truck type with

hydraulic brakes.



NEW: The Model 51 Drill is equipped with Automatic Drill-Cuttings Shield and Guide. Now blast holes are kept absolutely clean from cuttings. A dam is formed about blast hole, excluding casual surface water.

This Coal and Clay Drill has been designed around a 40 h. p. engine. It will drill 2\(\frac{1}{2}\) inch holes at a speed up to 7 feet per minute in No. 5 coal. Another Parmanco engineering feature is the ability of this drill to handle 4\(\frac{1}{2}\) inch augers up to 2\(\frac{1}{2}\) feet in depth.

PARIS MANUFACTURING CO., Paris, III.

SALES AND SERVICE . . .

Continued from page 196

the board, succeeding his father, G. A. Armington, who becomes honorary chairman after serving in the top post since 1931. Ray Q. Armington is president; G. E. Armington is vice-president in charge of engineering; Hugh T. Monson is vice-president for manufacturing; E. H. Newby is vice-president and controller; and J. L. Hinckley is treasurer.

Lone Star Cement Corp.: R. A. Hummel becomes chairman of the board; H. A. Sawyer is president; Th. Avnsoe is vice-chairman of the board; C. C. VanZandt is vice-president, engineering; J. H. Mathis is vice president and secretary; and J. W. Mather, vice-president, industrial relations.

Dravo Corp.: William A. Robinson has been appointed assistant chief engineer of the Contracting Division.

Special Mention

Harnischfeger Corp.: Opened its new diesel engine plant in Crystal Lake, Ill., which is expected to triple production of P&H 2-cycle diesels.

Wilson-Albrecht Co.: Waco sectional steel scaffolding will be manufactured and distributed on the West Coast by the Waco-May Scaffolding Co., under license by Wilson-Albrecht, serving California, Arizona, Idaho, Nevada, Oregon, Utah and Washington.

Zonolite Co.: Opens a vermiculite processing plant in Wilder, Ky., to serve northern Kentucky, southern Indiana and southern Ohio.

Universal Concrete Pipe Co.: Opened a plant at Jessups, Md. (near Baltimore), to produce round and special shapes from 6- to 72-in. diameters.

Hercules Steel Products Corp.: Will manufacture the Willard Concrete Machinery Company's (Lynwood, Calif.) line of concrete mixers, weigh-batch loaders and conveyors in its plant at Galion, Ohio, to serve distributors in eastern and midwest states.

Association Activities

Asphalt Institute: George H. Dent becomes division engineer, supervising Division 1 which includes New England, the balance of the Atlantic Seaboard, Tennessee, Alabama, Mississippi and Louisiana. His headquarters will be at the Mills Bldg., Washington 6, D. C.

Portland Cement Association: Promotes four staff members. G. Donald Kennedy becomes vice-president; W. D. M. Allan becomes vice-president for promotion; Evelyn Pinkerton and J. L. Schneider become assistant secretaries.

UPSON-WALTON



Wire rope craftsman

IT takes more than machines to build an outstanding wire rope . . . it takes men with the skill born of long experience. Upson-Walton wire rope is engineered for safety . . . and quality control checks are applied throughout manufacture by men who are craftsmen at their tasks.

Specify Upson-Walton for the extra care and experience that mean longer, safer service from your wire rope.

Manufacturers of All Three Wire Rope . Tackle Blocks . Fitting



THE UPSON-WALTON COMPANY

12500 ELMWOOD AVENUE . CLEVELAND 11, OHIO Chicago

Pittsburgh

YOU CAN DEPEND ON UPSON-WALTON'S 81 YEARS OF EXPERIENCE

July 1952 - CONSTRUCTION Methods and Equipment - Page 201

CONSTRUCTION EQUIPMENT NEWS . . A Preview of

JAMES M. CONNOLLY, Equipment Editor



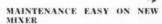
WESTINGHOUSE OFFERS NEW EW-20 WELDER In the first stages of their construction job, Harlan Electrical Construction Co. of Cleveland used their new Westinghouse EW-20 welder's 110-ac power takeoff to supply 3 kw of standby power—enough to supply for lights, power saw drills, pipe-cutting machines, and every other need in their temporary setup.



ENGINE-DRIVEN RIG HAS AC POWER TAKEOFF In addition to using the welder for primary and standby they utilized its prime purpose in all kinds of job welding. Engine-driven by a Ford Type 120, 4-cylinder, its rating is 200 amp and current ranges from 20 amp at 20 load volts to 250 amp at 40 load volts.—Westinghouse Electric Corp., 401 Liberty Ave., Pittsburgh 30, Pa.

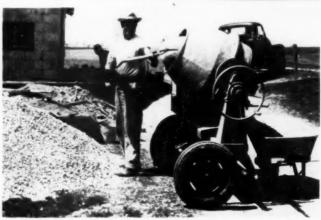
ECONOMICAL ROAD MAINTE-NANCE WITH MOTO-PATCHER

As much as ten tons of mixed materials an hour can be delivered from this Moto-Patcher which has been designed for towing behind a truck, as shown. Rig consists of feed hopper, mixing conveyor, bitumen tank and tank heater (that uses kerosene or bottle gas). Mixer running through bitumen tank gives aggregate a drying effect. Front and rear connections are provided for hand spraying. Mix is deposited on pan at shoveling height or can be dropped right into a road break.-Hetherington & Berner Inc., 701-45 Kentucky Ave., Indianapolis 7, Ind.



In designing their new 312-S Dandie mixer, Kwik-Mix Co. had maintenance in mind, since they put highpressure automotive-type fittings on anti-friction bearings on drum, drive shaft and wheels. Only five Alemite fittings need to be serviced weekly, and multiple V-belts can be replaced quickly and easily. Engine house cover comes off as a unit for starting, checking and servicing convenience. A tilting type, the new end-discharge mixer complies with AGC specs for 312-ft mixed material capacity plus 10%. A tilting device can hold the drum in any position, and a push-down tow pole balances the machine for easy, one-man spotting, hitching and moving.-Kwik-Mix Co., Port Washington, Wis.





New Machinery, Tools and Equipment That Will Help You on the Job



FRONT-END LOADER IS "ONE-ARMED BANDIT"...
Because of its single 8½-in, dia tubular arm this machine is called the "One-Armed Bandit," said to have double the bearing spread of two-arm loaders and capable of taking more torque stress. It has 3-to-1 planetary drive and transmission with four speeds forward and reverse. Powered by Chrysler 6-cyl 114-bhp engine.



... AND ITS COUNTERPART IS THE DOZERMOBILE Partner for the "Bandit" is this Dozermobile, designed for on and off-highway use. Blade measures 35x96 in. and gas or diesel power is optional. Features include Vickers hydraulic drive and axle oscillation up to 24 in. Blade can operate 9 in. below grade and 24 in. above.—Mixermobile Distributors, Dept M. Portland 20, Ore.





WINDROW LOADER REDESIGNED The Adams TraveLoader has been redesigned considerably so that it's now equally productive in stockpiles of gravel, crushed stone, sand, soil, coal or cinders as these pictures attest. Still usable for its primary purpose of reclaiming highway grades to restore proper drainage, it can also load snow, leaves, berm, etc. Rear section is adjustable from the cab to various heights to match trucks. Floating feeder, entire front of the loader and rear section of the conveyor can be raised or lowered hydraulically from cab by operator. Feeder, conveyor and travel movements are controlled by him also, through over-center-type clutches. Speeds range from low of 0.23 to high of 25.5 mph and an International industrial-type gas engine supplies (Continued on next page)

power for feeder, conveyor and travel. Fenders and cab enclosure are optional.—J. D. Adams Manufacturing Co., Indianapolis, Ind.

RUBBER POWDER FOR PAVING-

A new form of rubber powder for use where it is desired to add small quantities of rubber to asphalt paving mixes is to be put on the market next year by Goodyear in cooperation with the Berry Asphalt Co. of Magnolia, Ark. The powder is made by co-precipitation of a synthetic rubber with a mineral filler of finely ground barytes. Two compounds are available, one containing 10% rubber and one with 30% rubber and one with 30% rubber and 70% filler. Cost figures will not be

available until next year. The powder is free-flowing and disperses more rapidly in an asphalt mix than do the pure rubber powders used heretofore. Test installations using it have been made on Madison Ave. in Kansas City and on Pike Ave. in North Little Rock, Ark, The Goodyear and Berry companies have also cooperated in development of an improved pelletized rubber for surfacing of playground, walks and bridge floors. The pellets are about 14 in, in dia, and both natural and synthetic rubbers are used. Normally the pellets are applied to the playground surfacing at a rate of 5 to 7 lb per sq yd, being spread following the application of an asphalt emulsion. Where maximum cushioning is required, as under playgound equipment, the amount can be increased to 10 to 12 lb per sq yd; the surface is then compacted with conventional rolling equipment. Costs run around \$1.60 per sq yd for the rubber surfacing.—The Goodyear Tire & Rubber Co., Akron, Ohio.

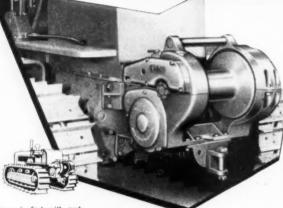
TOGGLE BOLT ASSEMBLY-A new type toggle bolt is now available which is said to offer three distinct advantages not previously obtainable. Super-grip three-in-one toggle bolts may be installed with either (1) the head of the bolt outside a wall, (2) the nut outside or (3) with toggles purchased separately and used with any bolt. This makes possible reduced inventories because the toggle bolt is reversible in the head and provides flexibility not heretofore possible. The toggle head is available from stock for bolt diameters from 1/8 to 1/2 in .-Super-Grip Anchor Bolt Co., Inc., 3333 N. 22nd St., Philadelphia 40, Pa.

MULTIPLE - SHOT BLASTING UNIT — Improved firing action, safety and dependability are said to be incorporated in a new multiple-shot blasting unit that has approval of the U. S. Bureau of Mines (21808). Measuring only 2½x2¼x4¾ in., it is carried on a snap-on belt clip. The wiring circuit is completely insulated from the battery container to preclude accidental firing, and since the unit is capacitor-operated, a full charge is dissipated with each shot,



eliminating misfires. In the accompanying photo, the battery container is shown hanging on the belt clip. Next to it is the firing plug with a push-button on the left-hand side, and attached to it with a chain is a firing-plug guard. To set off a blast, the operator inserts his lead wires into two holes in back of the firing plug, depressing the push-button at the same time. When he (Continued on page 207)





Carco is first with pushpull cable controls. Through the years Carco has pioneered such important winch developments as antifriction bearings, dust-tight case, oil bath lubrication.

Let in Volume-

1st in Value

Carco now builds more tractor winches than any other manufacturer, and for more makes of tractors. This means that Carco has the widest field experience, that Carco offers the extra value you expect from the volume leader, and that Carco has the largest number of sales and service outlets. You'll find

that tractor dealers, owners, operators all know Carco winches as the standard of the industry.

CARCO Winches for all makes of tractors

PACIFIC CAR AND FOUNDRY COMPANY

RENTON, WASHINGTON Branches: PORTLAND, ORE, and FRANKLIN PARK, ILL.



The job moved fast in the construction of "200 East End" one of New York City's newest and most modern apartment houses.

ON SCHEDULE . . . WITHOUT OVERTIME . . . with LEHIGH EARLY STRENGTH CEMENT

Under the usual pressure for early occupancy, the contractor on this modern apartment set up a close operational schedule-one floor every five days. With competent management and Lehigh Early Strength Cement, the construction cycle was maintained steadily . . . without extra effort . . . without overtime.

Column and beam forms were stripped in 24 hours... arch forms, in 48 hours . . . saving half the usual formmaterial costs. What's more, cost of winter protection was reduced by 65% to 70%.

This is another of many cases that show how Lehigh Early Strength Cement can help you save time, cut costs and meet highest quality standards. Our Service Department will be glad to help you with your specific problems.

LEHIGH PORTLAND CEMENT COMPANY

ALLENTOWN, PA. . CHICAGO, ILL. . SPOKANE, WASH.



ouring the roof slab. Concrete mad Lehigh Early Strength Cement.

Owner-Builder

SOL ATLAS, Contractor

New York City.

BARNABY CONCRETE CORPORATION New York City

Ready Mixed Concrete:

N. RYAN COMPANY, INCORPORATED

Brooklyn, N. Y.



LEHIGH PORTLAND CEMENT . LEHIGH EARLY STRENGTH CEMENT . LEHIGH AIR-ENTRAINING CEMENT . LEHIGH MORTAR CEMENT



• Since the introduction of STANOLUBE HD Motor Oil in 1942, Standard has led the way in the development of additive-containing lubricants for automotive and diesel engines. New STANOLUBE HD-M is tailored to meet the demands of today's increased severity of operating conditions. It's a tougher oil for tougher jobs! Here's what it offers to operators of heavy-duty equipment:

Longer engine life results from STAN-OLUBE HD-M's improved detergentdispersant action. Engines stay clean under the tougher operating conditions caused by adverse fuel quality, higher running temperatures, and prolonged periods of severe service. Freedom from deposits means less engine wear. Less engine wear means longer engine life.

Lower maintenance costs result from STANOLUBE HD-M's greater oxidation stability. It helps keep pistons, rings, and valve stems free from varnish-like deposits and provides protective films of oil in the face of high operating temperatures. Less wear on engine parts and longer periods between overhauls mean lower maintenance costs.

Your nearby Standard Oil service-supply center stocks STANOLUBE HD-M Motor Oil for fast local delivery. This service-supply center is also headquarters for your Standard Oil lubrication specialist. Call him today. He can help you obtain maximum lubrication benefits with STANOLUBE HD-M . . . a tougher oil for tougher jobs! Or write: Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.

STANDARD OIL COMPANY (Indiana)



releases the button, the wires are snugly held by spring-loaded retainers. The operator then inserts the firing plug into the battery container and presses firmly to make contact. He holds it firmly until a small neon light glows at the top of the case, indicating a full charge in the capacitor. Release of the firing plug then sends high voltage through the leads to detonate the charge. — Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh 8, Pa.

TRUCK - TRACTOR ENGINE—Reo Motors, Inc., recently announced that they were producing trucks powered by liquefied petroleum gas (LPG), and now has entered the diesel field with a tractor model said to be one of the lightest units on the road in its class. The new model, F-23DT, is powered by a new, light Cummins JBS-600 diesel. A standard F-23DT chassis and cab, with 20 gal of fuel and all tractor equipment except the fifth wheel, weighs 9,475 lb. It has a gross tractor rating of 50,000 lb and a 130-in. wheelbase. The Cummins JBS-600 is a 4-cycle engine that develops 150 hp at a governed 2,500 rpm and 360 ft-lb of torque at 1,400 rpm. Weight of the complete power plant, including clutch and transmission, is only 1,825 lb .- Reo Motors, Inc., Lansing, Mich.

ONE-MAN MASONRY DRILL BIT -One man can drill holes in green concrete, using an electric or pneumatic hammer equipped with the new Thunder-Twist carbide drill bit. Thunder-Twist is an improved version of the Thunderbolt bit and has two deep spiral vanes which easily remove dust and preclude packing or binding of bits. It allows faster drilling in granite and other hard masonry materials, and is capable of drilling holes from 3/16- to 11/4-in. dia, up to 36 in. deep. Available lengths are 3, 4, 6, 12, 18 and 24 in., and special diameters, shanks or extra-length bits can be furnished on request.-New England Carbide Tool Co., Inc., Cambridge, Mass.

REPEATER FOR AUTOMATIC REBATCHING—To increase the efficiency of transit-mix and central-mix concrete operations, a pushbutton control panel has been developed by the C. S. Johnson Co. that can automatically produce 24 different size and type batches of aggregate and cement. In addition, a repeater mechanism provides uninterrupted rebatching of any one selection a predetermined number of times. The mix selection mechanism is controlled electrically, and installed under the multiple-compartment ce-



Here's one contractor who did! As an example of the advantages inherent in MICHIGAN Truck Cranes, Mr. Gurtzweiler of Henry Gurtzweiler, Inc., Toledo, cited a competitive-bid job.

Other contractors figured on the necessity of using a large crane with long boom to reach from outside a building being erected. Gurtzweiler, taking advantage of his MICHIGAN'S compact size and maneuverability, planned to work from a central point *inside* the building. Result? Henry Gurtzweiler, Inc. got the job... another of the many on which the MICHIGAN has given them a competitive advantage.

Moreover, Mr. Gurtzweiler states that although the truck crane is five years old and never has had an idle day, it is still in perfect condition and has had very little maintenance. Why settle for less? Next time you need a truck crane . . . get a MICHIGAN!

MICHIGAN POWER SHOVEL COMPANY

495 Second Street, Benton Harbor, Michigan, U.S.A.

ment and aggregate bin. A central dial scale unit controls automatic material batchers on each compartment, and its pen records the weights. A water batcher and cement batcher provide for automatic moisture compensation. A dial on the 24 mix selector provides for 2,500 lb or 3,000-lb concrete in batches of 1/2, 3/4 or 1 yd. On each batch there's selection for 3-, 4-, 5- or 6-in. slumps, making it a simple matter to change from one batch to another. The repeater mechanism provides rebatching of the initial batch, 1, 2 or 3 times to make up a full mixer charge. The operator merely sets

the mix selector, then sets the repeater and pushes the start button; it's as simple as that. Contact the Kochring Co., Milwaukee 16, Wis., or its subsidiary, C. S. Johnson Co., Champaign, III.

HIGH-TEMP GREASE — In answer to increasing demands for standardized gun-grease resistant to water and extreme temperatures, D-A Lubricant Co. has come up with one for the heavy-duty field called D-A Lithium. It's said to combine the advantages of high melting point and complete water resistance with a tenacity to metal under the hottest

operating conditions. Further, it's claimed to be equally effective in summer or winter for all pressure fittings and bearings. Packaged in, 35-lb pails and in 100- and 400-lb drums by D-A Lubricant Co., Inc., 1331 W. 29th St., Indianapolis, Ind.

TWIN SPARK-ARRESTER-SILENC-ER-A twin spark-arrester-silencer has been built for use on General Motors 6-71 twin or quad power plants. The 1244-HCT4 model utilizes two Kittell horizontal spark-arrestersilencers welded together and provided with offset intake nipples to match the twin exhaust manifolds of the GM diesel. As exhaust gases enter these intake nipples, they're whirled by a stationary impeller, and the sparks are thrown by centrifugal force into traps. Exterior plugs permit easy periodic cleaning. Gases then pass through the silencing compartment into the atmosphere. The twin unit is all-welded and ready to mount. As an alternate choice, a twin standard exhaust silencer is available without spark arrester .-Kittell Muffler and Engineering Co., 915 S. Santa Fe Ave., Los Angeles

HYDRAULICALLY OPERATED ONE-MAN SAW-Here's a one-man chain saw that's hydraulically operated. Known as the Hydra-Flex, its hydraulic head transmits up to 12brake hp from a heavy-duty Von Ruden hydraulic pump that fits the power take-off of any convenient tractor, jeep or truck. A safety bypass valve protects the operator and the saw if the blade is pinched or crowded beyond its high-cutting capacity. Weight of the saw and power head is only 30 lb. The oneman Hydra-Flex is manufactured in 18-, 24- and 30-in. sizes. With easy attachment of a handy helper's handle, the larger two are converted quickly to two-man saws. The 32-in. and 46-in, two-man models complete the company's line of hydraulically operated saws. Greater cutting capacity utilizing power already available to lower first cost and greater flexibility are advantages claimed by the manufacturer.-Von Ruden Mfg. Co., Claremont, Minn.

ROLLING ALUMINUM SCAFFOLD TOWERS-Aluminum is in the construction equipment and materials market again, this time in form of a rolling scaffold tower. The tower has no nuts, bolts or loose parts and it folds to a compact unit 61/2 in. thick weighing only 64 lb. One man can carry it and erect it in 2 or 3 min. The single tower section is 41/2 ft wide by 6 ft long by 6 ft high, adjustable by means of screw jack bases to 8 ft, affording a working platform of 27 sq ft. Full or half-sections can be added easily to raise the tower to any height desired.-The Aluminum Assn., 420 Lexington Ave., New York 17, N. Y.





PERFORMS EVERY MAINTENANCE FUNCTION... SPRAY SHOULDERS • RELOCATE CURVES • PATCH CHUCK HOLES • SEAL COAT and SECONDARY CONSTRUCTION WORK

Powered by either 7.2 h.p. or 15 h.p. engine, equipped with a 100 GPM Pump, this Model "S-J" will handle any type of material with equal efficiency — uniformly applying material from end to end of spray bar up to 10-foot length. Two powerful burners supply intense heat through 5 inch heat flues — and fast heating is assured. Dual lever controls all operations. A curb side gravity draw-off permits easy crackfilling and sealing.

Mayor Ray E. Otten, Versailles, Mo., says: "We're doing some fine work with this machine" It's a moneysaver on any type job that can be handled with this fast working equipment.

WRITE FOR CATALOG "S-J"

OTHER PRODUCTS

Asphalt Pressure Distributors, Far Kettles, Patch Rollers, Supply Tanks, Tool Heaters, Asphalt Tools, Street Flushers, Construction Brooms,

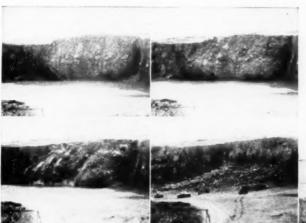
Standard the Highest

Standard Steel Works NORTH HANSAS CITY, MO



What Kind of Pile Faces Your Shovel?

Here's how alternate milli-second delay shooting can pile well-broken rock away from the face!



Photos at North Jersey Quarry Co., Millington, N.J.

Here's a close-up of a well-shot rock pile—the end result of a ROCKMASTER alternate milli-second delay blast. Note particularly the ridge of the pile indicated by the arrow and dotted line—see how the rock was piledawayfrom the face. This is the kind of control over throwthat only ROCKMASTER blasting can give.

Here you see a ROCKMASTER® alternate milli-second delay blast in action. The first picture was snapped by the machine-gun camera \(^1_2\) second after the blast was initiated: bulging face already gives evidence of excellent breakage. The second photo shows the peak of the blast with the rock moving out from the face. In the third photo you can see the rock piling up on the quarry floor. Final photo shows the well-broken rock lying away from the face at about the height of the shovel boom—where it can be handled safely and efficiently . . . where it will cost the least to move.



ROCKMASTER Blasting is controlled blasting. See how it can work for you. Send for free 16-page book "Quarry Blasting the ROCKMASTER Way"—it illustrates millisecond delay methods with machine-gun camera photos.



ATLAS EXPLOSIVES

"Everything for Blasting"

ATLAS POWDER COMPANY • WILMINGTON 99, DELAWARE
Offices in principal cities

WELLMAN Williams Type

PERFORATED DRAGLINE BUCKET speeds the wet jobs

 You get big loads fast with this Wellman Perforated Dragline Bucket because excess water goes out while gravel stays in on jobs such as illustrated.

Built of special alloy steel—all welded for strength plus light weight. You can work faster with less maintenance with Wellman dragline buckets.

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Dragline, Clamshell, Custom-Built Buckets, Stone and Wood Grabs.

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DOUBLE the POWER

and you double the use

of your FORD Tractor



FUNK CONVERSION KIT

FUNK Products include:

Straight Power Take-Off Clutches Right Angle Take-Offs Front End Take-Offs

Gear Reduction Units and Heavy-Duty Clutches



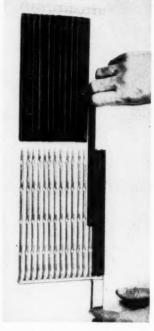
You can do unbelievable jobs with ease when you equip your Ford Tractor with a regular 100 h.p. V-8 or 95 h.p. 6-cylinder Ford engine, on your old or new tractor, with our change-over kit. Increases operation time, and enables tractor to handle heavier equipment and accessories. Conversion costs about 1/3 as much as most tractors of same power. Install it yourself or have your dealer do it. Write TODAY for specifications and prices.

FUNK AIRCRAFT CO.

3303 AIRPORT DRIVE

COFFEYVILLE, KANSAS

STORAGE BATTERY IMPROVE-MENTS—Corrosion of the positive plate grid is one of the major causes, if not the leading cause, of battery failure. Another curtailment of battery life is the loss of active material from this positive plate. Also, there is the possibility of short circuits within the battery caused by a precipitated accumulation of loose active material. With these three major deficiencies in mind, the Exide people set about to design an industrial storage type for railway, motive



power and other heavy-duty service which would be free from these troubles. By the time they finished, there were three additional features as well. Silvium, a new alloy of silver, lead and other components, is now used in construction of the positive-plate grid, since it is highly resistant to corrosion. To combat the loss and accumulation of active material, they manufactured a grid made up of metal core rods which are inserted in slotted hard rubber tubes (see photo). Active material is packed into these tubes to surround the rods, and very fine slots in each tube permit entrance of the electrolyte but prevent washing out of active material. In place of alloy bar which ordinarily sealed the tube bottoms (and corroded eventually), they now use a single bar of noncorroding polyethylene which has a sealing plug for each tube. In addition, this polyethylene is an insulating material and acts as a safeguard

(Continued on page 213)



SAVES YOU TIME AND MONEY ON JOBS LIKE THESE...



SEND FOR **NEW CATALOG**

To learn advantages of Rodgers Jacking Cvlinders on construction jobs . . . get the new Rodgers Catalog No. 317. It gives full information. RAU Wherever you need versatile, efficient jacking power on the job - you'll want a Rodgers jack. A complete selection of hydraulic cylinders in various capacities and lengths of ram travel are available - to be used with either hand-operated or power-driven hydraulic

Cylinders may be operated either singly or as a group for a straight jacking of compressed concrete pipe, corrugated pipe, well casing, etc., or used in the operation of the shield jacking method. Two sizes of quick couplers, 4-way and metering valves, and high pressure hose are available accessories.

Complete specifications, illustrations and suggested uses are included in the new Rodgers Jacking Equipment Catalog.

JACKING COMPRESSED CONCRETE PIPE

JACKING CORRUGATED PIPE

> JACKING WELL CASING

JACKING SHIELD FOR TUNNELING

Rodgers Hydraulic, 9mc.

7403 WALKER ST., ST. LOUIS PARK, MINNEAPOLIS 16, MINN. HYDRAULIC POWER EQUIPMENT



IT CAN

PUSH

front end loader with bucket (illustrated), or angle dozer blade, rotary sweeper, snow plows, etc.

PULL

anything a wheel tractor will and also with front or rear winch.

POWER

any hydraulically, mechanically and pneumatically operated equipment such as back hoe (illustrated), post hole digger, scaffold boom, etc.

PROVIDE AIR

for any pneumatic tools that can be operated from a 105 C.F.M. AIR COMPRESSOR.

5

SCHRAMM INC.
The Compressor People · WEST CHESTER · PENNSYLVANIA

A phone call (West Chester 2500) or letter to Schramm Inc., West Chester, Pa., will arrange a demonstration or provide animated colored sound film. SCHRAMM AIR COMPRESSORS (Continued from page 210) against shorting between plates. Other improvements in the Exide-Ironclad battery are a new homogenous sealing compound, a seamless shockproof jar and unbreakable plastic vent plugs.—The Electric Storage Battery Co., P. O. Box 8109, Philadelphia 1, Pa.

ENTRAINED AIR INDICATOR-This unit, designed for fast and accurate determinations of entrained air content in freshly mixed concrete, has been developed recently. The amount of entrained air required in a mix is usually between 3 and 6% of the volume of concrete, but this will vary under special conditions. The Cenco indicator tests concrete samples by the pressure method. A recent survey of 14 experimental highway sections shows that air-entrained concrete stands up well through winter exposure and use of ice-removing chemical. The company reports that currently 30 of the 48 states require use of airentrained concrete in all pavements, while 11 additional states permit its use under certain conditions. Central Scientific Co., Chicago, Ill.

LIQUID FOIL-Permalume Type 3 Aluminum is a liquid foil for use on tar or asphalt built-up roofing to replace the usual flood coat and gravel surfacing. It differs from original Permalume in that it forms thicker films in one-coat applications, has somewhat less stretch but is more leather-like, while retaining low-temperature flexibility and stability to undue softening and sagging up to 250F. When used to replace tar or asphalt and gravel roof surfacing, weight savings up to 350 lb per sq or more are possible, permitting further savings in lighter structural designs for dead loads. Other advantages are its reflective properties, ease of application by brush, spray or mopping, elimination of gravel stops, low initial cost and labor savings and increased protective qualities .- Grems Mfg. Co., 5635 S. 6th St., Klamath Falls,

WAX LUBRICANT FOR CUTTING TOOLS-A stick-type wax lubricant is marketed for lubrication of cutting tools, threaded metal fastenings and other metallic forming tools. Called "Tool-Saver", it is designed to reduce friction and accompanying heat occurring in machining operations. This facilitates better tool performance, while prolonging tool life and preserving tool temper; it also helps prevent scoring or burning. A pound of DoALL Tool-Saver is supplied in a push-out cardboard dispenser tube measuring 11x2 in., and is applied directly to the cutting edges of the tool or to the surface of the material to be machined. The lubricant is recommended for use on saw bands, knife bands, circular saws, drills, taps, reamers, routing and spinning tools, sanding belts or wheels.—DoALL Co., Des Plaines, III.

STUBBY TRUCK TRACTORS—In response to demands of truck operators for a conventional-type truck tractor capable of hauling 35-ft semi-trailers in states where 45 ft is the over-all length limit, the motor truck division of International Harvester Co. has introduced the "102 Space Saver". With a 102-in. bumper-to-back-of-cab dimension, it offers truck operators the length-saving

advantages of cab-forward or cabover-engine truck tractors at less cost and retains the driver comfort, styling and utility advantages of conventional trucks. Thirty-five-ft trailers now can be pulled by conventional-type tractors in all states except Pennsylvania and Massachusetts, both of which restrict trailers to 33 ft regardless of over-all length. All other states will permit either a larger semi-trailer or greater over-all length. These tractors should make possible more varied and profitable highway rigs.—Interna-tional Harvester Co., 180 N. Michigan Ave., Chicago 1, III.





With the Delta automatic power feed attachment, you reduce labor costs and handle material faster with resultant profit increases.

There's a Delta Power Tool for Your Job-

METAL WORKING 53 MACHINES 246 MODELS

operations.

246 MODELS MORE THAN 1300 ACCESSORIES

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Zone

State

machine; manually operated, it is the most versatile radial saw on the market—rips, angle rips, ploughs, rabbets, shapes, sands, routs... uses have been listed in excess of 125 known

FOR DELTA DEALERS, SEE YOUR CLASSIFIED DIRECTORY UNDER "TOOLS"

NEW EQUIPMENT BRIEFS

A new air-operated, double-action reciprocating pump, specially designed for greater volume and pressure for supplying long-line circulating systems and spray guns, is being manufactured by The Gray Co., Inc. Minneapolis, Minn. The circulating system in the heavy-duty "Paintmaster" delivers paint directly to the spray head and back through the supply lines. Since no air pressure is exerted on the paint itself, aeration is reduced to a minimum, thereby eliminating bubbles and pinholes in the finished surface.

Sealed ball bearings, exclusively designed to keep dirt out-and lubricant in-and that are interchangeable with conventional non-sealed bearings, have been announced by SKF Industries, Inc., PO Box 6731, Philadelphia 2, Pa. The seal is made of du Pont Fairprene, and is said not to be affected by petroleumbase lubricants, normal operating temperatures or aging.

A new insulating compound suitable for operating temperatures of from minus 60 deg C to plus 120 deg C, designated as HLT 500, has been announced by Chester Cable Corp., 521 Fifth Ave., Chester, N. Y. The insulated wires are now available

for high temperatures and baking operations such as transformer leads. motor leads, coil and relay leads and for confined areas where excessive temperature build-up has been a problem.

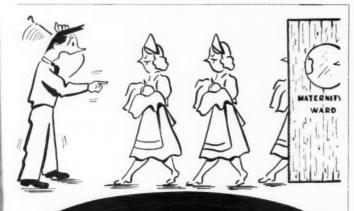
Scale forming in pipes, evaporators, heat exchangers, condensers, water heaters and coils that robs industry of millions of dollars in power bills can be removed, according to the manufacturer, easily and quickly with RYDLYME solvent. Apex Engineering Co., 75 E. Wacker Dr., Chicago 1, Ill., demonstrates the noncorrosive, fast-dissolving qualities by having a company representative hold a particle of scale in his hand, then pour a small amount of RYDLYME on the scale. In a few moments the scale disappears in a gaseous state without injuring the demonstrator.

Fuel savings of Cummins diesels over gasoline engines can be easily calculated in dollars on a cost comparator prepared by Cummins Engine Co., Inc., Columbus, Ind. The handy, slide rule-type calculator allows power users to quickly determine early savings that can be realized through the use of their Cummins diesels. The comparator is based on fuel savings experienced by operators during the 33 yr that their engines have been used on heavyduty jobs.

Materials which do not lend themselves to grouping on pallets for transportation can be strapped and held in place by the new Rogers pallet binders, according to Roger L. Toffolon, Brandywine Ave. and Wylie St., Schenectady, N. Y. No tools are needed to attach the canvas binders which come equipped with webbed straps and will contain materials to a maximum pallet height

Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y. announces its redesigned line of horizontal, multistage centrifugal pumps for mediumpressure applications. These pumps, called Class CNTA, are intended for boiler feed, mine dewatering, marine, refinery and general industrial services to 800 lb. Built in 11/2-, 2-, 21/2-, and 3-in. sizes, they're available with 4, 6 or 8 stages.

One of the most modern units offered to contractors and highway departments is the new Littleford Spraymaster bituminous distributor, a full circulating spray bar up to 24 ft in width. Labeled Model CLRC, they are various sizes, from 800- to 4,000-gal capacity. A bypass cap on each end of the bar allows full circulation; material passes through front of the bar and bypasses to the rear bar. It's available from Littleford Bros., Inc., 457 E. Pearl St., Cincinnati. Ohio.



Measured Production When It's A. G. C. Rated

Mixer "output" need no longer be an unknown quantity to architects, engineers and contractors engaged in the serious business of estimating concrete or determining the proper mixing capacity of a drum.

That Is - Not If the Mixer Is A.G.C. Rated . . . For drum sizes and proper mixing capacities are guaranteed on all mixers wearing the A.G.C. label.

Protect yourself - be sure the mixer you buy is A.G.C. rated.



Mixer Manufacturers Bureau

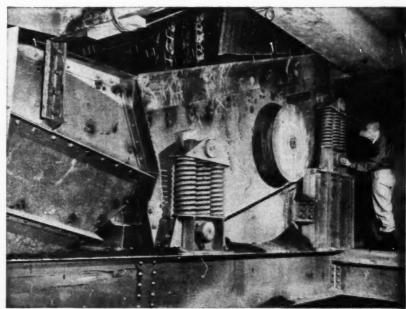
Affiliated with the Associated General Contractors of America, Inc.

CHAIN BELT COMPANY CONSTRUCTION MACHINERY CO. Waterloo, Iowa THE FOOTE CO., INC. Nunda, N. Y.

THE JAEGER MACHINE CO. KWIK-MIX COMPANY THE KNICKERBOCKER CO. Jackson, Mich. ROEHRING COMPANY

Port Washington, Wis. THE T. L. SMITH COMPANY

WORTHINGTON CORPORATION



Impervious material for the dam core is first scalped on this 6' x 14' Hewitt-Robins Heavy-Duty Scalper equipped with 12" x 15" openings in the steel deck.

Hewitt-Robins System Processes 7 Million Yards of Material for Huge Earth-Filled Dam

To maintain a fast, continuous flow of this mountain of material at the lowest cost per yard, the contractors of a huge Eastern dam project are using a unique materials processing system designed by Hewitt-Robins.

This system, consisting of Hewitt-Robins Heavy-Duty Scalpers, Belt and Pan Conveyors, is divided into two self-contained processing plants. One plant is handling approximately 2 million yards of impervious earth for the dam core... the other is processing some 5 million yards of pervious material. These plants are designed to operate at the rate of 1300 cubic yards and 2600 cubic yards per hour respec-

tively and to operate 20 hours a day, 5 days per week.

Here is just one more example of how Hewitt-Robins bulk materials processing and handling systems are meeting schedules and cutting costs for contractors everywhere.

Learn how a Hewitt-Robins system may provide a more efficient—more dependable—more economical answer to your bulk materials handling and processing operations. Let us show you facts and figures. Send us details of any project you now have or intend to bid on. Include topographical maps. Write Contractors' Service Department, Robins Conveyors Division.

HEWITT-ROBINS



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Complete service and parts facilities are maintained by Wayne Crane Distributors in all principal cities.

STURDILITE The HEAVY-DUTY

years of profitable operations. See Wayne Crane before you buy any crane-excavator.

FLOOD LAMP THAT

Lights Your Work Better... Gives
Longer Service at Lower Cost

Specially Designed for Efficient Service on Shovels — Excavators — Drag-lines Roadbuilding Equipment Locomotive Cranes — Tractors

"Bullt to take it," say users of STURDILITE
Heavy-Duty Flood Lamps, after years
of trouble-free service. Hermetically sealedbeam lamp—no reflector to become tarnished.
Complete assembly mounted on rubber cushioned base that absorbs vibration and shocks.
Available in 6-8, 12-16, 24-28 and 110-120
voltages.

COMPLETE BULLETIN, specifications, and quantity prices sent promptly upon request.



Vibration-absorbing Base



Metal Spinning Division
PHOENIX PRODUCTS COMPANY

4729 N. 27TH STREET, MILWAUKEE 16, WISCONSIN

A new checkerboard-patterned hardwood plywood panel is currently being offered by U. S. Plywood Corp., 55 W. 44th St., New York 18, N. Y. The new checkerboard plywood is available in 48x96 in. panels of fiveply construction.

A color system has been devised by the Wilbur & Williams Co., 130 Lincoln St., Boston 35, Mass. in their Odorless Dampcoat Enamel enabling painting over damp surfaces, as well as dry. The chief feature of this color system is that it eliminates any tinting tube or agitant, and merely calls for easy mixing.

A new all-purpose electric insulating varnish, GE 9700, has been developed by the Chemical Division of General Electric Co., Pittsfield, Mass. It's suitable for treating motor and generator cores and windings, magnet coils and transformer windings; can be used on rotors with speeds up to 10,000 rpm; may be applied by dipping, roller coating, brushing, spraying or by vacuum or pressure impregnation.

A new K&E steel measuring tape called "Boss Wyteface" is available from **Keuffel & Esser Co.**, Hoboken, N. J. With a wide, reel-like winding handle and notched finger grips, it's a convenient tool for working in all weather conditions.

Kohler Co., Kohler, Wis., manufacturers of engines, electric light plants, plumbing equipment and precision controls, has come up with Model K 90, a new engine with 3.6-hp rating at 3,600 rpm. It is an ideal power source for centrifugal pumps, portable saws and other pieces of equipment requiring ample power in a compact space.

Flexible Dur-O-Line traffic lane markers are now available to traffic departments for use at heavy traffic points to mark pedestrian and traffic lanes, according to an announcement from Traffic Safety Supply Co., Portland, Ore. They can be applied on concrete, wood or asphalt surfaces just as easily as the rigid type and effect substantial economies over the use of yellow paint that must be repainted at frequent intervals.

The Justrite Manufacturing Co., 2061 N. Southport Ave., Chicago, Ill. introduces a new safety red flashing lantern for use in all Class I, Group D hazardous locations, as well as any other spots requiring a warning or marking light. Portable and battery-powered, the Model 2146-S lantern houses a red lens and a sliding switch assembly which controls two bulbs. One position of the switch produces a steady red beam which can be instantly changed to a flashing red light by flipping the switch.

it takes a GIANT to drive PILES

Take a look at one of the heaviest ram pile hammers ever built and you will get a good idea of its driving power. This McKiernan-Terry S-14 Single-Acting Pile Hammer was used to drive 192-ft steel H-beam piles to 85 feet under water in the construction of the Potomac River Bridge at Ludlow Ferry, Md.

There are, of course, good reasons why this giant McKiernan-Terry Hammer was selected by Merritt-Chapman & Scott Corp., the contractor. (1) This S-14 hammer has exceptional power and capacity. It delivers a 37,250 foot-pound blow at 60 blows per minute. (2) McKiernan-Terry manufactures the only single-acting hammers that can perform underwater work. This makes possible the use of shorter piles . . . saves labor, time and material. (3) The hammer is completely protected from sand, grit and foreign matter. (4) There are no exposed working parts, reducing hazards to workers.

Yes, for driving big piles . . . and small ones, too, . . . the complete McKiernan-Terry line offers the profitable combination of power and dependability. Choose from 16 sizes of single and double-acting pile hammers and 2 sizes of double-acting extractors. For full details, write for bulletin.

This giant McKiernan-Terry S-14 Single-Acting Hammer is built to drive long-length piles. The total weight of the hammer and anvil is 31,800 pounds. Ram alone 14,000 pounds. Overall height is 16 feet 7 inches.

McKIERNAN-TERRY CORPORATION Manufacturing Engineers

14 PARK ROW, NEW YORK 38, N.Y. Plants: Harrison, N.J. and Dover, N.J.



Here are good points to remember when it comes time to replace clutch and brake friction materials on your machines . . .

By far the majority of earth-moving machine manufacturers choose Johns-Manville Industrial Friction Materials. That's not surprising, actually J-M Friction Products have set records for long service and low-cost operation. They are *engineered* for the job—specially formulated for trouble-free performance and maximum working life.

And Johns-Manville's rigid manufacturing and inspection controls provide real insurance of uniformly high quality.

If you want to be sure that your own equipment will continue to give the excellent service built into it—take a tip from the machine maker. Replace only with genuine Johns-Manville Friction Materials.

Write for your copy of "Johns-Manville Industrial Friction Materials" FM-12A. It contains a wealth of important application and performance data. Address: Johns-Manville, Box 60, New York 16. New York.

Johns-Manville INDUSTRIAL FRICTION MATERIALS

No. I With Leading Manufacturers

Called Plastiglas Hedgard, a new safety hat combines style and comfort with strength, high dielectric properties, unusual shock-absorbing features and design that protects the neck from dripping fluids and the sun. Made by Davis Emergency Equipment Co., Inc., Newark, N. J., it's reported to be lighter than conventional-type hats. Free air circulation in the interior of the hat along with its aluminum color, adds to coolness and wearer comfort.

To facilitate making sharp turns or takeoffs on flexible plastic pipelines, Carlon Products Corp., 10225 Meech Ave., Cleveland 5, Ohio has come up with some accessories. They are insert-type ell and tee couplings; one fitting now effects a connection which formerly might have required three or four. Joining procedure is the same as on regular insert couplings. Stainless steel clamps draw the pipe into the serrations of the insert to assure a leakproof joint.

A new line of Fiberglas safety helmets and caps is announced by Industrial Products Co., 2715 N. Fourth St., Philadelphia 33, Pa. Designed for use in mines and mills, as well as on construction sites, they can be had with any accessories, such as chin straps, lamp brackets and winter linings. The helmet weighs only 12 oz; the cap, 10 oz. They adjust to any head size from 6½ to 8.

It's a comparatively easy job now to pull tractor rear wheels, pulleys, flywheels and the like with the new OTC Universal chain puller, built to be used with the OTC 17½-ton hydraulic ram. It operates as a two-way or three-way puller and comes equipped with a 3-ft, 3,720-lb proof tested chain with a grab hook on one end. Screw-adjusted, self-centering hooks permit straight, even pulling without cocking. It's available from Owatonna Tool Co., 380 Cedar St., Owatonna, Minn.

A 22-yd tractor-drawn scraper, the TC-190, is introduced by Wooldridge Mfg. Co., Sunnyvale, Calif. and Chicago, Ill. Capacities are 19 yd struck and 22 yd heaped; front tires are 21:00x24 and rears, 24:00x25. A "boiling bowl" principle is incorporated to produce more rapid loading.

A two-stage portable transfer unit for cleaning hydraulic oils in machine tools has been designed and built by the J. N. Fauver Co., Inc., 49 W. Hancock, Detroit 1, Mich. Powered by a Yale & Towne pump, its first-stage filter is a Cuno Auto-Clean metal-edged type. The second-stage filter is a Cuno Micro Clean which filters out everything to 25 microns (one thousandth of an inch). All tubing and Parker fittings are to JIC standards and circulation rate is 10 gpm.

Why every type of stabilized base is stronger when mixed with the SEAMAN

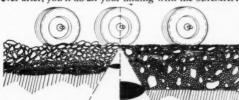
There's a very good reason why SEAMAN-mixed bases carry heavier traffic loads — and carry them longer with less maintenance. For example, take any stabilization which employs gravel. Trucking gravel to the job and especially the subsequent blading causes "segregation," — in other words, the fines sift through to the bottom — which creates an inherently unstable condition.

The SEAMAN PULVI-MIXER completely corrects segregation by blending and proportioning the coarse and fines equally throughout the full depth of the treatment—and at the same time thoroughly mixes-in whatever type of binder is employed. All voids are filled with the fines so that after compaction the finished stabilization is uniform and of exceptionally high density.

And if the material has previously been shaped to grade and finished crown the SEAMAN leaves the mix ready for immediate compaction.

This basic mixing action of the SEAMAN builds a stronger, denser, more weather resistant base with every material — from soil or sand to pit-run gravel.

Put a SEAMAN to work on your job — now. And for ever after, you'll do all your mixing with the SEAMAN.



The unstabilized aggregate (left above) tends to move to the surface, the fines to the bottom. Thus the material becomes loose and rough under traffic regardless of binders that may be employed unless mixed-in with the SEAMAN.

The SEAMAN stabilized aggregates (right above) form a firmly hait base essential for high load-bearing characteristics. Naturally, binders mixed-in with the SEAMAN further improve the quality. (Belaw) in SEAMAN-stabilized aggregate base all stones are securely locked and anchored — a basic requirement regardless of binder.



(Above) Sand-clay stabilization is stronger, more economical with the SEAMAN MIXER.

SEAMAN MOTORS, INC.

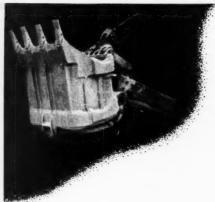
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ALLOY RODS COMPANY

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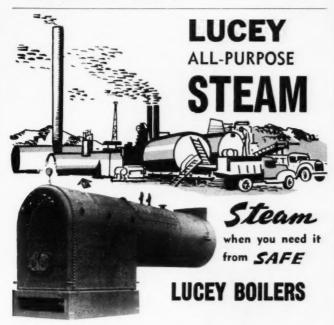
YORK, PENNSYLVANIA

AR-

Development of a new type of fluorescent lamp is announced by General Electric Co., Nela Park, Cleveland 12, Ohio. Named "Rapid Start," the new lamps are to be used with specially designed ballasts, and are intended only for new lighting systems. They are being made in the popular 40-w size and in the standard "cool white" color.

"Lubrication and Maintenance Guide for Contractors and Allied Equipment" is the title of a 96-p spiralbound booklet by the Gulf Oil Corp., Pittsburgh 30, Pa. Representing a great deal of time and effort, the booklet includes guidance in lubrication and upkeep of asphalt plants, stone plants, dredges, ready-mix concrete machinery, well-drilling rigs, as well as the standard contractors' items — shovels, cranes, tractors, etc. There's also a section on proper use of anti-freeze solutions and a complete list of Gulf products for every need.

Lull Manufacturing Co., 314 W. 90th St., Minneapolis 20, Minn., has a new Model 3-B Shoveloader built for use on the Minneapolis-Moline RTI tractor. The 3-B permits installation of the M-M SMRI mower attachment without interfering with the operation of the Shoveloader. Either may be operated without removal of the other.



From 15 to 17 inches steam space above low water level, insuring ample steam reserve for sudden excessive demand.

Used by many Road Contractors with their asphalt plant installations.

May be fired with coal, wood, gas or oil.

For easy portability, boiler can be skid mounted with built-in base for burner.

Manufactured strictly to ASME requirements in sizes 40 to 150 H.P. and pressures from 150 lbs. to 350 lbs.

Write for our bulletins No. 150 and No. 151 for complete specifications.



BOILER and MANUFACTURING CORPORATION

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SMOKE STACKS

BREECHINGS
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 ASME UNFIRED PRESSURE VESSELS

YOU GET VIBRATION-PLUS



VIBRO-PLUS

... even "no slump" concrete flows easily!

Users call Vibro-Plus the most efficient of all internal vibrators. That's because its patented ROLLGEAR* Vibrating head steps up the 3600 RPM shaft speed to 11,000 to 15,000 VPM—does a more effective job of consolidation—with these plus-values...

- -Astonishingly long service from shafts
- -Easier lubrication (grease the shaft in 15 seconds, even while running -- the head needs no lubrication ever)
- -Lowest maintenance cost
- -Handles the stiffest mix with
- -6 months guarantee

Write for complete facts and name of nearest distributor. *Reg. U. S. Pat. Off.

TYPE MRSB-Gasoline driven.

Furnished with 2½ or 4½ HP Wisconsin or Brigg & Stratton air-cooled engine on 360° suivel base, with footproof snap coupling for 20 or 30 ft. flexible shaft. No V-belt, no clutch, no gears. Rollgear vibrator head and

shaft interchangeable for electric or pneumatic power if desired. Available with 1¾", 2½6", 2¾" and 4" diameter heads. Grinding attachments available.





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For joining grader, trencher, ditcher and other earth moving conveyor belts. For belts $\frac{1}{2}$ for $\frac{1}{2}$ thick.

A FLEXCO fastener that is HINGED. Has removable hinge pin.

Troughs naturally, operates through take-up pulleys.

Strong, durable . . . pull or tension is distributed uniformly across joint.

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Increase your profits by using fastworking, cost-cutting electric tools on every job, even where highline power is not available. Lightweight, sturdy, Onan engine-driven electric plants supply instantly-available power anyurbere for lights, drills, saws, pipethreaders, planers, spades, tampers, repair-shop tools and other motor-driven equipment. Carry 'em, wheel 'em, or truck 'em right to the spot and plug in for all the power you need. Equipped with carrying handles or dolly-mounted.

Lightweight Air-Cooled Models: A. C.—400 to 3,000 watts. D.C.—750 to 5,000 watts. Heavy-duty models to 35,000 watts.



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New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use.

RECORD RETENTION AND DE-STRUCTION—This 24-p brochure is designed to aid management in the intelligent planning for disposition of records. Along with illustrations and reproductions of forms used for record retention and destruction, the handbook contains a checking chart listing various types of records and the suggested time element for their retention.—Remington Rand, Inc., 315 Fourth Ave., New York 10, N. Y.

CLAY PRODUCTS — This pocketsize catalog includes plus and minus discount schedules, list prices for sewer fittings and recently developed clay products. There's a variety of fittings illustrated in color in the 91-p ring-bound midget published by Universal Sewer Pipe Corp., Cleveland. Ohio

SCALE SELECTOR—New Duraline drafting machine scales are illustrated and described in a 6-p bulletin printed in two colors. Advantages of the aluminum scale are listed, in addition to a chart showing all standard Duraline scale graduations commonly used. To aid buyers when writing for information on specially graduated scales for special uses, the bulletin provides an explanation of scale terminology in general use.—Universial Drafting Machine Corp., Cleveland 2, Ohio.

CRANES, HOISTS—To acquaint industry with their complete line of equipment, American Hoist and Derrick Co. has published a 31-p catalog which covers all equipment from the giant revolver cranes through locomotive cranes, hoists, material elevators and car pullers and down to wire rope clips. On-the-job pictures offer a guided tour of material-handling installations throughout the world.—American Hoist & Derrick Co., St. Paul, Minn.

WESTINGHOUSE DATA BOOK—Divided into four parts, this 330-p ring-bound book for architects and engineers contains specifications and descriptions, as well as illustrations of the company's products. Each of the four groups—power plant, electrical distribution, utilization and accessory equipment and engineering data—is tabbed and has its own table of contents.—Westinghouse Electric Corp., East Pittsburgh, Pa.

PROGRESS IN EXPLOSIVES...



EXPLOSIVES PARADOX

Don't be misled by the "old style" mule. This is a scene at an up-to-date dynamite plant. "New style" is the modern air conditioning equipment shown in the background.

Air conditioning enables Hercules to control atmospheric conditions while the dynamite is being packaged behind the barricade. In other words, it keeps your powder dry.

This is another example of Hercules pioneering that gives you better made explosives with better blasting efficiency.

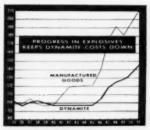


Chart shows relative stability of dynamite prices since 1935, as compared with prices of other manufactured goods, 1935–39 values=100,

HERCULES POWDER COMPANY

NCORPORATED

Explosives Department, 974 King St., Wilmington 99, Del.

XR52-5

WET JOBS

#7 of a series

ADDITION TO TELEPHONE BUILDING

Newport News, Va.

Contractor: Wise Contracting Co.



BOTTOM VERY UNSTABLE, Open pumping caused sheeting to collapse. View shows job shut down after second attempt to sheet hole.



WITH WELLPOINTS. Job is bonedry, bottom firm and stable—Griffin Wellpoint system (see pumps, top of photo) holding ground water 3 ft below subgrade.

TIGHT FINE SAND with silty clay binder . . . precarious jetting conditions . . . "pinched-in" working space . . . these were only some of the problems. Griffin skills solved them all, speedily and economically.

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In Canada: Construction Equipment Co., Ltd.
Toronto Montreal Helifax

STAINLESS STEEL IN ARCHI-

TECTURE-This new 20-p booklet, "How and Where to Specify Stainless Steel in Architecture," lists nearly 300 construction applications of stainless steel ranging from air-conditioning ducts to show windows. A companion book to that published by Committee of Stainless Steel Producers of American Iron and Steel Institute, it also provides information on some 20 groups of fabricated stainless products ready for installation, as well as data on most usual types of stainless for architecture. A specification guide discusses recommendations for good practice in handling stainless by metal contractors-American Iron and Steel Institute, 350 Fifth Ave., New York.

PIPE - CORROSION BOOKLET-

Protection of buried pipes from corrosion with "Scotch" plastic tapes is described in a new 8-p illustrated booklet. Included are description and illustration of high-speed machine and hand wrapping techniques of tapes No. 21 and No. 22 for protecting natural gas and water mains, ioints and leads from corrosive effect of soil chemicals, oils and fats, stray ground currents and soil bacteria and fungi. The 8-p booklet cites case histories where wrapping methods described were used, as well as problems resulting from pipe corrosion. Physical and electrical properties of the tapes are listed also, providing valuable engineering information.-Minnesota Mining and Mfg. Co., 900 Fauguier St., St. Paul 6. Minn.

The Motor Patcher



—a mobile mixing unit designed for easier, more economical road and street maintenance.

for speedy, low-cost patching

● The Moto-Patcher delivers up to 10 tons per hour of *freshly* mixed material. The aggregate may either be shoveled into the hopper, or fed into the hopper by a small elevator (optional equipment). The mixed material is deposited on a pan of convenient height for easy shoveling, or it can be dropped directly onto the road surface. The 400 gal. tank assures an adequate supply of bitumen for uninterrupted production, making frequent stops unnecessary. The mixer, running through the bitumen tank, provides a drying action for the aggregate. If desirable, bitumen may be circulated when machine is not mixing.

Bulletin MP-51, giving specifications, flow diagram and complete information, will be sent





HETHERINGTON & BERNER INC., 735 Kentucky Avenue, Indianapolis 7, Indiana

THE TOLEDO STORY-Fifty years with the Toledo Pipe Threading Machine Co. are recounted in a handsome 20-p brochure celebrating Toledo's golden year. Along with information on notable events in Toledo's history, the 2-color brochure illustrates and describes the "lineup" of Toledo pipe tools and the people who have made them down through the years.-Toledo Pipe Threading Machine Co., Toledo, Ohio

HOW TO CLEAR RIGHTS-OF-WAY

-Providing latest information on chemical brush control, this 4-p brochure lists what chemicals to use. recommended dilution and methods of operation for both foliage spray and basal bark treatment. Mixing proportions are given in a table on the final page of the brochure available from Thompson Chemicals Corp., St. Louis 3, Mo.

MANGANAL MARKETER-Special shape applicator bars for repair of tractors is the subject of Vol. 2, No. 11 of the Manganal Marketer. Included is a table listing lineal feet requirements for various types of tractors. The repairman can estimate how much of the grouser has been worn away and pick the size bar which will bring the grouser up to original size from actual-size diagrams listed in the Marketer. Complete details for welding on the bars are supplied along with explicit directions and illustrations.-Stulz-Sickles Co., 134-142 Lafayette St., Newark, N. J.

SELECTING THE RIGHT CRUSHER-A crushing machine is usually purchased with the expectation of operating it for many years to come. Spread over the years, the purchasing cost therefore becomes negligible - but the operating cost can be prohibitive if the wrong crusher is selected. It goes on and on as long as the machine is operated. This 12-p booklet is a must for the man (as the cover says) who, some time, may want to select a crusher. It's jam-packed with information .-Pennsylvania Crusher Co., 1700 Liberty Trust Building, Philadelphia 7, Pa.

TRACTOR-MOUNTED TOOLS -Latest instruction booklet in comicbook style is that of the Hyster Co., entitled "A Story of Tractor Tools and Their Uses". Picking up the baton from Caterpillar, who published several of this same type, it explains how much more versatile a tractor can become if it carries the right attachments, including winches, crane booms, shovels, logging arches, skidding pans, wellservicing winches, track-walking crawlers, etc.-Hyster Co., 2903 N. E. Clackamas, Portland 8, Ore.



There are many different styles of shackles, swivels, hooks, thimbles, clips, sockets, eye bolts and other products designed for a wide variety of applications throughout industry. If you use wire rope or chain, you can be sure that Laughlin has the right - and safest - fittings for the job.

THESE EXCLUSIVE PRODUCTS



Safety "FIST GRIP" Wire Rope Clips . . . Fool proof, easy to install Fist Grip clips hold rope more securely, can't go on wrong. Fewer clips are required than for ordinary types, and they will not crush or distort the rope.

SAFETY HOOKS . . . The latch locks the load, will not open until released by operator. Strong, drop forged steel hook has improved latch that leaves 80% of throat opening. 15 sizes; 3 patterns, eye, shank and swivel.

"MISSING LINK" (Reg. U.S. Pat. Off.) . . . Cheaper than welding, safer than cold shut or cast link, "Missing Links" go

on in a jiffy and are stronger than proof coil chain. 17 sizes from 3/16" to 17_8 ".

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THE MOST COMPLETE LINE OF DROP FORGED WIRE ROPE AND CHAIN FITTINGS





THE INDUSTRY'S MOST VERSATILE

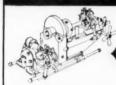
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Optional Equipment: Gin Pole Assembly, "Chicago" Boom, Tip-Over Bucket, Truck Mounting, Interchangeable 10' Extensions.

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BEAVER-gives you a choice of 4 PIPE and BOLT MACHINES



BEAVER MODEL-A

rugged, Heavy-Duty Machine. Range 1/6 to 2". Up to 12" with Geared Tools and Drive Shaft. Bolts 1/4 to 2"-Weight 365 lbs.



A Middleweight Utility Machine. Range 1/6 to 2". Up to 8" with Geared Tools and Drive Shaft. Bolts 1/4 to 11/2' -Weight 235 lbs.



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A Lightweight Portable Machine. Range 1/2 to 2". Up to with Geared Tools and Drive Shaft. Bolts 1/4 to 11/2" -Weight 185 lbs.



A sturdy little Power Drive

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Advertisers in this Issue

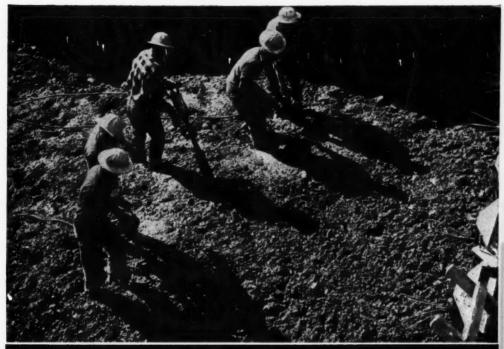


and Audit Burger of Orcula

A	
Acker Drill Co., Inc	231
Acrow, Inc	15
Air Reduction Sales Dlv., Air Reduction Co., Inc.	
Alemite Div., Stewart-Warner Corp	197
Allis-Chalmers	. 23
Alloy Rods Co	220
American Bosch Corp. (Magneto Div.)	183
American Chain & Cable Co. (American Cable Div.)	27
American Hoist & Derrick Co 18, 19	. 116
American Manganese Steel Div., American Brake Shoe Co	31
American Steel & Wire Div., United States Steel Co. Atlas Powder Co.	110
Atlas Powder Co	209
Austin-Western Co	173
В	
Baker Mfg Co	26
Baker-Roos, Inc	174
Baldwin Lima Hamilton Corn	
(Construction Equipment Div.)	153
Barber-Greene Co24, 25.	182
Bay City Shovels, Inc.	226
Bethlehem Steel Co	
Black & Decker Mfg Co., The	126
Blaw-Knox Div., Blaw-Knox Co 60,	61
Boston Woven Hose & Rubber Co	166
Buck Equipment Co	
Bucyrus-Erie Co	141
Buda Company	
Butler Bin Co	
c	
Caterpillar Tractor Co	11
Chicago Pneumatic Tool Co.	227
Cities Service Oil Co	115
Clayton Mfg Co	106
Cleaver-Brooks Co	198
Clipper Mfg Co63,	177
Clyde Iron Works, Inc	228
Clyde Iron Works, Inc	108
Commercial Shearing & Stamping	56
Complete Machy & Equip. Co., Inc	128
Construction Machy Companies	
Continental Motors Corp	168
	132
Crucible Steel Co. of America	176
Cummins Engine Co., Inc	133
D	
Davier Company Co	150
	150
Delta Power Tool Div., Rockwell Mfg. Co.	213
Dempster Brothers, Inc	199
General Motors	65
E	
Electric Tamper & Equipment Co.	
Electric Tamper & Equipment Co. (Jackson Vibrator, Inc.)	118
Ellicott Machine Corp	169
Etnyre & Co., E. D	58

Etnyre & Co., E. D. 58

Euclid Road Machinery Co..... (Continued on page 229)



CP ELECTRIC VIBRATORS SPEED THE HEAVIEST MASS CONCRETE PLACEMENT



This CP Hicycle Vibrator can be used anywhere within a 400-foot radius of the portable generator.



With their heavy-duty, low maintenance motors, CP Electric Vibrators have what it takes to handle harsh aggregates on big dam projects.

7 models of CP Vibrators

In the complete line of CP PNEUMATIC and ELECTRIC CONCRETE VIBRATORS the contractor will find a model exactly suited for any specific job.

There are one-man and two-man pneumatic and high frequency electric vibrators for mass concrete; one-man pneumatic and high frequency electric small diameter models for reinforced concrete walls and columns, and similar work. Write for complete information.



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MORE LOADS



FASTER



EASIER



SAFER!

with a



The ease of operation of Clyde Band Friction Hoists permit the operator to concentrate all of his attention on the safe, sure, accurate spotting of loads. Convenient and easily-operated controls practically eliminate fatigue . . . and the consequent slowing down and dangerous operations by a tired-out operator. Smooth, positive engagement and release eliminate shock loads on cable and hoist and give split-second control at all times!

Clyde Band-Friction Hoists are available in one, two and three drum models with nominal line pulls to 21,000 lbs. and line speeds to 400 f.p.m.

Circular MP-48 gives complete information and specifications on these hoists . . . time savers and money makers for all construction jobs. Write for it TODAY!

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Clyde Internal Friction Bands Dissipate

Heat FASTER, LAST LONGER, ADJUST EASIER!

Friction bands on Clyde Hoists are inside the friction drum, thus permitting the heat to be carried away as it is generated — something impossible when the band surrounds the outside of the drum and virtually forms an insulating blanket around the heat generating surfaces.

At those infrequent times when ad-justment needs to be made, it can be done simply and quickly! FRICTION LININGS CAN BE REPLACED WITH-OUT REMOVING THE DRUMS! Check all the advantages of a Clyde Band-Friction Hoist before you purchase

ANY hoist!



Subsidiary of Barium Steel Corp.

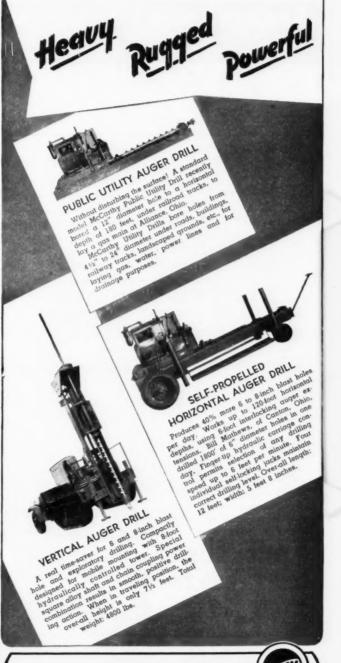
Advertisers Index

(Continued from page 226)
P
Flexible Steel Lucing Co 222
Ford Motor (Ford Division) 39
Ford Motor (Ford Division)
Foundation Equipment Corp. 177
Funk Aircraft Co
G
Galion Iron Works & Mfg. Co., The 167
Gar-Bro Mfg. Co
General Electric Co
General Tire & Rubber Co. 123 Gilson Screen Co. 134
Gledhill Road Machinery Co., The 146
GMC Truck & Coach Division, General Motors
(Truck Tire Division) 1
Goodyear Tire & Rubber Co
Greenlee Tool Co
Griffin Wellpo'nt Co 224
Gulf Refining Co 2
н
Hagan Tubular Products
Hallicrafters Co
Harnischfeger Corp
Hercules Motors Corp
Hercules Powder Co
Hetherington & Berner, Inc. 224 Hewitt-Robins, Inc. 215
Hopkins Volcanic Specialties, Inc 186
Hose Accessories Co
Hydrauger Corp., Ltd. 231 Hyster Co. 14
Hyster Co
1
Independent Pneumatic Tool Co
International Harvester Co., Inc.
International Harvester Co., Inc. (Industrial Power Div.)
Iowa Mfg, Co
1
Jackson Mfg. Co
Jaeger Machine Co., The
Jahn Trailer Div., Pressed Steel Car Co 127
Jeffrey Mfg. Co., The
Johns-Manville
K
Koehring Company
. L
LaPlant-Choate Mfg. Co., Inc
Laughlin Co., The Thomas 225
Leece-Neville Co
Le Roi Company
Le Tourneau Inc., R. G
Leschen & Sons Rope Co., A
Lucey Boiler & Mfg. Corp

WHERE TO BUY

(Continued on page 231)

Haynes Products Co., Omaha, Neb



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Serial Nos. 328611 and 328680. Extended tracks, wide pads and equipped with D-318 Caterpillar Engines.

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Advertisers Index

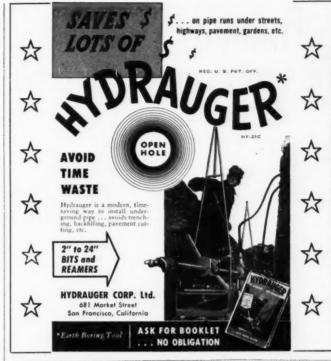
(Continued from page 229)

McGraw-Hill Book Co	230
McKiernan-Terry Corp	217
Macwhyte Company	3
Madesco Tackle Block Co	191 158
Mall Tool Co	188
Manitowoc Engineering Works	66
Manhattan Rubber Div	103
Marion Metal Products Co	59 190
Marlow Pumps	190
Master Builders Co 3rd Co. Maxon Construction Co., Inc. (Mfg. Div.)	135
Miller Research Engineers	207
Miller Research Engineers	135
Mixer Mfrs. Bureau	214
Maretrouch Corn	119
Morin Mfg. Co., Inc	139
Morse-Starrett Products Co	191
N	
No. 1 - Disc Co.	
Naylor Pipe Co Nardherg Mfg. Co.	152
Northwest Engineering Co	7
0	
Onan & Sons. D. W	222
Owen Bucket Co	107
P	
	204
Paris Mfg. Co	146
Penn Tool & Machine Co	8
	185
Pettibone Mulliken Impact Master Div.,	
Phoenix Products Co. (Metal Spinning Div.)	10
Powder Power Tool Corp.	155
Pressed Steel Car Co., Inc. (John Trailer Div.)	107
(John Trailer Div.)	127
Q	
Quaker Rubber Corp. Div., H. K.	
Porter Co., Inc	64
R	
R.	
Raybestos-Manhattan, Inc	103
Raybestoe-Manhattan, Inc. Remington Arms Co., Inc. (Industrial Sales Div.)	103
Remington Arms Co., Inc. (Industrial Sales Div.)	103 195 213
Raybestos-Manhattan, Inc. Remington Arms Co., Inc. (Industrial Sales Div.) Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc.	103 195 213
Remington Arms Co., Inc. (Industrial Sales Div.)	103 195 213
Remington Arms Co., Inc. (Industrial Sales Div.) Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc	103 195 213 211
Remington Arms Co., Inc. (Industrial Sales Div.)	103 195 213 211
Remington Arma Co., Inc. (Industrial Sales Div.). Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc. S Safway Steel Products Inc. Salem Tool Co., The.	103 195 213 211
Remington Arms Co., Inc. (Industrial Sales Div.) Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc	103 195 213 211 121 229
Remington Arma Co., Inc. (Industrial Sales Div.). Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc	103 195 213 211 121 229 164 111 212
Remington Arms Co., Inc. (Industrial Sales Div.). Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc	103 195 213 211 121 229 164 111 212 219
Remington Arma Co., Inc. (Industrial Sales Div.). Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc. S S Safway Steel Producta Inc. Salem Tool Co., The. Sanstorm Mfg. Co. Schield Bantam Co. Schramm, Inc. Seaman Motors, Inc. Serviciased Products Corp.	103 195 213 211 121 229 164 111 212
Remington Arms Co., Inc. (Industrial Sales Div.). Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc. S S Safway Steel Products Inc. Salem Tool Co., The. Sanstorm Mfg. Co. Schield Bantam Co. Schramm, Inc. Seaman Motors, Inc. Seawan Motors, Inc. Servicins Products Corp. Shnuk Mfg. Co. Sinclair Refining Co. 44.	103 195 213 211 121 229 164 111 212 219 184 116 45
Remington Arma Co., Inc. (Industrial Sales Div.). Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc	103 195 213 211 121 229 164 111 212 219 184 116 45
Remington Arma Co., Inc. (Industrial Sales Div.). Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc	103 195 213 211 121 229 164 111 212 219 184 116 45
Remington Arma Co., Inc. (Industrial Sales Div.). Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc	103 195 213 211 121 229 164 111 212 219 184 116 45 147
Remington Arma Co., Inc. (Industrial Sales Div.). Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc	103 195 213 211 121 229 164 111 212 219 184 116 45 147
Remington Arma Co., Inc. (Industrial Sales Div.). Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc	103 195 213 211 121 229 164 111 212 219 184 116 45 147
Remington Arma Co., Inc. (Industrial Sales Div.). Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc. S S Safway Steel Producta Inc. Salem Tool Co., The. Sanstorm Mfg. Co. Schield Bantam Co. Schramm, Inc. Seaman Motors, Inc. Seaman Motors, Inc. Serviciased Products Corp. Shnuk Mfg. Co. Sinclair Refining Co. Six-Wheels, Inc. Smith Corp., A. O. (Welding Products Div.) Southwest Welding & Mfg. Co. (Construction Machinery Div.) Standard Dry Wall Products. Standard Ol Co. (Indiana)	103 195 213 211 121 229 164 111 212 219 184 116 45 147 119
Remington Arms Co., Inc. (Industrial Sales Div.). Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc. S Safway Steel Products Inc. Salem Tool Co., The. Sanstorm Mfg. Co. Schield Bantam Co. Schried Bantam Co. Schramm, Inc. Seaman Motors, Inc. Seaman Motors, Inc. Serviciased Products Corp. Shnak Mfg. Co. Siz-Wheels, Inc. Smith Corp. A. O. (Welding Products Div.) Southwest Welding & Mfg. Co. (Construction Machinery Div.) Standard Dir Wall Products. Standard Oil Co. (Indiana) Standard Steel Corp. Standard Steel Corp. Standard Steel Corp.	103 195 213 211 121 229 164 111 116 45 147 119 149 233 206
Remington Arma Co., Inc. (Industrial Sales Div.). Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc	103 195 213 211 121 229 164 111 116 45 147 119 149 233 206 138 186
Remington Arms Co., Inc. (Industrial Sales Div.). Rockwell Mfg. Co. (Delta Power Tool Div.) Rodgers Hydraulic, Inc. S Safway Steel Products Inc. Salem Tool Co., The. Sanstorm Mfg. Co. Schield Bantam Co. Schried Bantam Co. Schramm, Inc. Seaman Motors, Inc. Seaman Motors, Inc. Serviciased Products Corp. Shnak Mfg. Co. Siz-Wheels, Inc. Smith Corp. A. O. (Welding Products Div.) Southwest Welding & Mfg. Co. (Construction Machinery Div.) Standard Dir Wall Products. Standard Oil Co. (Indiana) Standard Steel Corp. Standard Steel Corp. Standard Steel Corp.	103 195 213 211 121 229 164 111 121 212 219 184 116 45 147 119 149 233 206 138 208

Superior Concrete Accessories, Inc...... 181

(Continued on page 232)

Symons Clamp & Mfg. Co.....





REMEMBER, Acker also makes a complete line of Diamond and Shot Core Drills, Drilling accessories and equipment.

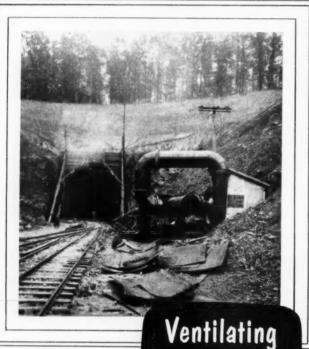
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Advertisers Index

(Continued from page 231)

Talbert Construction Equip. Co., The	
Texas Company	1. 193
Thermoid Company	
Thew Shovel Co., The	. 33
Thurman Machine Co. (Scale Div.)	109
Timken Roller Bearing Co	
Torcon Corp	46
Traylor Engrg. & Mfg. Co	
Tri-Line Co	. 54
Twin Disc Clutch Co	
U	
Ulrich Products Corp	. 187
Unit Crane & Shovel Corp	. 102
United States Motors Corp	. 128
United States Steel Corp 43, 52, 5	3, 110
Universal Atlas Cement Co	
Universal Form Clamp Co	. 62
Universal Road Machinery Co	
Upson-Walton Co., The	
7.	
, V	
Viber Company	. 124
Vibro-Plus Products, Inc.	
Victor Equipment Co	
Vulcan Iron Works	. 139
W	
Warner & Swasey Co	. 125
Wayne Crane Div., American Steel	
Dredge Co., Inc	
Weatherhead Co., The	
Wellman Engineering Co., The	. 210
Westinghouse Electric Corp. (Welding Div.)	8, 29
White Co., David	. 156
White Mfg. Co	. 128
Whiteman Mfg. Co	
Winslow Gov't. Standard Scale Works, In	
Wisconsin Motor Corp	. 196
Worthington Corp4th	Cover
_	

SEARCHLIGHT SECTION

H. E. Hilty, Mgr.

Emplo Position						. 4													
Selling	z () p	p	16	tı	3 2	18	ti	e	£.	•) [e	re	d				
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General contractor and technical supervisor of Standard Dry Wall Products, Inc., plan correction of an extreme condition existing in bleacher seats at Braves Field, Boston, Massachusetts.

THOROSEAL SCORES ANOTHER RUN HOME RUN at the Braves Field



Right photograph shows soffits of concrete seats where concrete has blistered away from reinforcing iods. Rods were sand-blasted and sealed with THORITE Patching Mortar and entire undersurface sealed with THOROSEAL.

General contractor, Henry Gironi, Allston, Massachusetts, an expert, with long experience in masonry maintenance, rehabilitation and surface protection, performs correction task on Braves Field, with satisfaction to all concerned. Waterproofing Products, Inc., Allston, Massachusetts, furnished the materials.

Above photograph shows THOROSEAL FOUNDATION COATING being grouted into upper, or wearing, surface of bleacher seats.

THORITE Patching Mortar was used for sealing rods and patching cracks and blisters in concrete. THOROSEAL FOUNDATION COATING was used for grouting wearing surfaces.

Standard Dry



Wall Products

EAGLE, PENNSYLVANIA

"HOW TO DO IT."

20-PAGE BRO-CHURE, with designer's guide. Pictorially described, in detail



Methods Memo . . .

TRAINING SCHOOLS ON WHEELS,

that come to the door of the construction equipment distributor, are on the increase among major manufacturers. Service training for many mechanics in their own back yard is superior to sending a few men to a factory school for a week or so, says Service Manager Homer Campbell (see page 113), but mobile schools are not always possible and many manufacturers offer excellent short courses in their own plants—which should be attended at some time by responsible service personnel of the distributor handling that product.

ONE CARLOAD PER MINUTE is the capacity of a conveyor belt installed recently by the Rail-To-Water Transfer Corp. in Chicago. The belt is 72 in. wide and 942 ft long; is operated at 560 fpm by a 350-hp motor. Made by the United States Rubber Co., it consists of 7 plies of 42-oz duck with a ½-in. rubber cover on top and a 1/16-in. cover on the pulley side. It is used in the transfer of coal from rail cars to river boats.

LOST, STRAYED OR STOLEN (probably the latter), is a Kwik-Mix Moto Bug belonging to contractor E. Arthur James of western Pennsylvania. James makes a specialty of building white concrete reflecting curbs for highways and lost the motorized wheelbarrow on the night of May 19 on a highway job. Anyone seen a new hot rod in his neighborhood with Briggs & Stratton Engine No. 35346?

IT'S OUR FIGHT, TOO, said Carlton S. Proctor, president of the American Society of Civil Engineers, in his address before the ASCE summer convention in Denver. He emphasized the dangers of statism and warned that what is happening to other groups soon can be the fate of the engineer. Some quotes:

"It devolves upon us . . . standing as we do as arbiters and impartial agents between labor and management, to immediately throw the full weight of our leadership to public guidance in exposing to public view, the fallacious precepts of statism and in restoring man's confidence in man's works.

"When efforts are being made to socialize medicine in complete disregard of its abject failure and sterilizing results in England, we should be the first to unite with our sister profession in determined opposition. Socialization of engineering would quickly follow that of medicine.

"We have talked of engineering leadership for years, but the time has come when the profession must replace talk by action. The high status which engineering should hold in the public mind will then be conferred on the profession."

DON'T RELAX YOUR GUARD, we are warned by the National Foundation for Infantile Paralysis in listing the following precautions against polio: (1) Wash hands carefully before eating; (2) don't get overtired or chilled; (3) avoid mingling in crowds as much as possible; (4) watch for these symptoms: headache, sore throat, fever, upset stomach, stiff neck—or combinations of these. Polio is the only epidemic disease still on the increase in the U. S. The attack rate has tripled since 1948.

BID-OPENING DATES henceforth will be coordinated by the Army Corps of Engineers and the Navy Bureau of Yards and Docks for military construction projects in the U. S. This is to avoid conflicts from the opening of bids on identical or near dates for work that draws bids from the same general pool of contractors. Only military construction estimated to cost \$1,000,000 or more will be coordinated. Air Force construction is included.

INCREASE PRODUCTION with existing facilities, without "speed up" and without adding or cutting personnel, is an interesting project of the USAF Air Materiel Command. The plan applies to everyone from commanding general to the person sweeping out the general's office. The employee writes down his work activities for a short period of time-normally five days. By studying what he has on paper, personnel, from individual workers through supervisors, can plan better systems and labor-saving devices with the materials, equipment and manpower at hand. Sounds like a fine idea for construction equipment maintenance people. Why not give it a try? Better utilization of facilities can make work easier, keep mechanics hap-

DIESEL GETS LEAD. A Cummins diesel engine powered racer sped around the Indianapolis Speedway for a one-lap record of 139.104 mph and a four-lap record of 138.010 mph, winning the

pole position for the start of the annual 500-mi Memorial Day classic. No, you wouldn't want this thoroughbred engine in an earthmover, but it is a research power plant to help get greater power and efficiency out of diesels for all industry. Unfortunately mechanical trouble forced the Cummins Special out of the race on the 80th lap.

CONSTRUCTION METHODS AND EQUIPMENT MAY 1919 Equipment

ON THE COVER

Symbolical of this special issue maintenance theme

Getting it straight from the instructor are these distributor service men intent on a cut-away transmission and final drive of an International TD-18A crawler tractor during a training session in maintenance conducted for personnel of State Equipment Co., Albany, N. Y. Observing closely are (clockwise): Carl Garb of State Equipment; Mike Gleaton and G. Patrick Donovan, International Harvester Co. mobile training unit instructors; Service Manager Edward Gulden, Dick Beck and "Wilkie" Wilkinson, all of State. The mobile training unit recently made a twoday stand at Albany in State Equipment's brand new headquarters, managed by hustling John Fremon. This fine color shot was made especially for us by that ace cameraman, Elmer Weaver, who ranges all over this continent taking action pictures for International Harvester's industrial divi-



BETTER CONCRETE, SPEED, ECONOMY with POZZOLITH

This \$4,000,000 sewage treatment plant is one of many hundreds built during the past twenty years in which Pozzolith was employed in the concrete to obtain important initial and long term benefits.

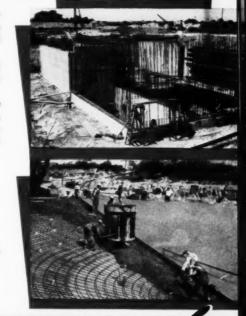
In addition to the advantages of easy placeability and good cohesiveness, Pozzolith provides low permeability and great resistance to corrosion and scaling.

Only Pozzolith's cement dispersion puts more of the cement to work... cuts water-cement ratio up to 15%... entrains the optimum amount of air. These are the reasons why only Pozzolith assures the following combination of advantages:

- MINIMIZED SEGREGATION for better appearance
- REDUCED SHRINKAGE for less cracking
- LOWER PERMEABILITY for less "waterproofing" expense
- INCREASED BOND-TO-STEEL for better construction
- GREATER DURABILITY for longer life concrete

Investigate the advantages of Pozzolith for your next job . . . it will enable you to obtain the qualities required at *lower* cost than by any other means.

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ON THIS MILLION-DOLLAR JOB IN RICHMOND, VA., Hughes-Keegan's air tools are powered by the Worthington Blue Brute 105 Portable Compressor in the background Job of removing streetcar tracks and ties and widening Richmond's Broad Street was recently completed.

Hughes-Keegan, Inc., Richmond, Va., contractors, have had plenty of opportunity to put compressors through the toughest grinds.

But, E. J. Keegan, president of the well-known firm, tells us they've standardized on Worthington compressors because they've always come through. Hughes-Keegan now has

six Blue Brute 105 compressors and a total of 15 Blue Brute air tools.

Blue Brutes may step up efficiency on your construction jobs. Write for more facts and bulletins to Worthington Corporation, Construction Equipment Division, Plainfield, New Jersey

A LOOK PRIDE TELLS WET the Worthington 105 Pertable Compresser is economical to run and economical to maintain. Features: exclusive Feather? Valves, two-stage operation, sir cooling, articulated connecting-rod assembly, intake valve unloading, fuel-awer control, full force-feed lubrication to full-floating wrist pins, W-cylinder arrangement in one plane, accurately counter-balanced crankshaft. Timken main bearings, off-bath air cleaner, replaceable-element oil filter, easily adjustable, fully enclosed clutch and many others.

'Reg. U S Pat On





If It's A Construction Job, It's A BIVE BRUTE Job



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